

**MEMORANDUM**

To: Honorable Eric J. Holcomb, Governor of Indiana  
Dr. Jennifer McCormick, State Superintendent of Public Instruction

From: Jake Koressel, Computer Science Specialist  
Ben Carter, Director of Workforce and Innovation  
Robin LeClaire, Chief Academic Officer

Date: January 15, 2020

Re: IC 20-30-5-23 NextLevel Computer Science Program Biannual Report

**Background**

IC 20-30-5-23 established the NextLevel computer science grant program (program) and computer science fund (fund) to award grants, after June 30, 2019, to eligible entities to implement teacher professional development programs for training in teaching computer science (CS). This Act requires the Indiana Department of Education (IDOE) to: (1) administer the program and fund, and (2) develop, in consultation with the Governor's Office, guidelines to award grants from the fund to eligible entities.

Requires, not later than August 1, 2018, the State Superintendent of Public Instruction to enter into a contract for professional development services.

Requires IDOE to biannually submit a progress report to the Governor regarding the: (1) development and administration of the program and fund, and (2) status of public schools in meeting computer science curriculum requirements. This biannual report must be submitted by July 15, 2018 and not later than July 15th and January 15th each year thereafter.

**Development and Administration of the Program and Fund****Timeline**

- April 2018
  - IDOE completed the special procurement process with Nextech
  - IDOE funded \$70,000 for start-up of Nextech contract (Appendix A)
  - State Board of Education approved IDOE-recommended CS course additions (Appendix B)
  - Announcement of 2018-2019 STEM Acceleration Grant recipients (Appendix C)
- May 2018
  - First CSforIN Summit: [www.CSforIN.org](http://www.CSforIN.org)
  - IDOE met with Nextech, the Governor's Office, and other stakeholders to discuss Nextech budget forecast (Appendix D)

- IDOE awarded grants to seven schools to implement the Project Lead The Way (PLTW) Cybersecurity Pilot Program (Appendix E)
  - IDOE published computer science professional development opportunities (continuously updated): <https://www.doe.in.gov/wf-stem/cspd>
- June 2018
  - First IDOE-sponsored Computer Science Fundamentals workshop takes place
  - Computer Science Specialist position begins at IDOE
  - Memo to the field regarding CS requirements and support (Appendix F)
- July 2018
  - 2018 CSforAll Letter of Commitment (Appendix G)
  - Strategic CSforALL Resource and Implementation Planning Tool (SCRIPT) Train-the-Trainer Workshop at Pathfinders Institute for IDOE and ESCs
  - Attendance at Computer Science Teachers Association (CSTA) Conference
- August 2018
  - Indiana Course Access Portal (iCAP) enrollments begin - computer science is included in course options: <https://www.doe.in.gov/icap>
  - State-Level Partnership with Girls Who Code begins (Appendix H)
  - Identification of Computer Science Champs (Appendix I)
  - Memo to the field regarding CS requirements and support (Appendix J)
  - Development of two-day “Integrating CS in Middle School” workshop (Appendix K)
  - Updated Computer Science Assignment Codes (Appendix L)
- September 2018
  - In conjunction with OMB and the Governor’s Office, IDOE finalized Nextech contract amendment - additional \$600,000 (Appendix M)
  - First IDOE-sponsored SCRIPT workshop takes place
- October 2018
  - Attendance at CSforALL Summit
  - First IDOE-sponsored Integrating CS in Middle School workshop takes place
- November 2018
  - Launch of IDOE STEM Six-Year Strategic Plan (Appendix N)
  - Established CS Training Badge for IDOE-sponsored workshop participants (Appendix O)
  - Announcement of 2019-2020 STEM Acceleration Grant recipients (Appendix P)
  - Development of State CS Plan in accordance with the Code.org Advocacy Coalition’s Nine Policies
  - CS Champs meet to begin development of middle school CS course
- December 2018
  - Attendance at National Initiative for Cybersecurity Education (NICE) K-12 Conference
  - Announcement of IDOE/PLTW Cybersecurity Grant recipients (Appendix Q)
  - Computer Science Education Week activities promoted by IDOE

- Call for applicants to participate in “Computational Thinking for Every Educator” online course (Appendix R)
  - Approval of the addition of PLTW Cybersecurity to Indiana’s Course Description Guide
  - Updates to the CTE funding memo impacting computer science courses (Appendix S)
- January 2019
  - Indiana named the third state to adopt all nine Code.org Advocacy Coalition Policy Recommendations (Appendix T)
- February 2019
  - IDOE-sponsored Computer Science Curriculum Showcase (Appendix U)
- March 2019
  - State Vex Robotics Competition
  - 50 educators complete “Computational Thinking for Every Educator” course
- April 2019
  - 0488 Computer Science - Middle Level is approved by the Indiana State Board of Education (Appendix V)
  - State Board of Education adopts rules allowing computer science courses to fulfill Core 40 requirement for third-year science (Appendix W)
  - Nextech contract amended to include additional summer 2019 projects (Appendix X)
  - STEM Plan Playbook developed, including computer science and cybersecurity (Appendix Y)
  - CS Champs meet to begin developing CS portion of Science Framework
  - Computer Science Assignment Codes updated to provide additional flexibility (Appendix Z)
  - Biennial budget is finalized including \$3,000,000 annually for the Next Level Computer Science Grant Program
- May 2019
  - Letter of Intent submitted to IDOA for Computer Science Professional Development RFP
  - Memo to the field regarding CS requirements and support (Appendix AA)
- June 2019
  - Phase 1 of Science Framework released, including K-8 Computer Science Standards (<https://www.doe.in.gov/science/framework>)
  - Attendance at State Computer Science Supervisors Workshop
  - Attendance at Arkansas’ National Computer Science Summit for State Leaders
  - RFP Released for K-12 Teacher Professional Development in Computer Science
  - STEM Certification Rubric Updates include compliance with IC 20-30-5-23 (Appendix BB)
- July 2019
  - 2019 CSforALL Letter of Commitment (Appendix CC)
  - Attendance at Computer Science Teachers Association (CSTA) Conference
  - Attendance at Cybertech Midwest Conference
  - New course completion data collected

- August 2019
  - K-12 Computer Science Professional Development RFP submissions scored
  - Computer science assignment codes updated to provide additional licensing flexibility
  - Identification of five additional Computer Science Champs
- September 2019
  - K-12 Computer Science Professional Development RFP awardees publicly notified
  - IDOE publishes vetted list of STEM and computer science curriculum (Appendix DD)
  - Attendance at CEdCon International Computer Science Education Conference
- October 2019
  - IDOE-sponsored STEM and Computer Science Curriculum Showcase (Appendix EE)
- November 2019
  - Superintendent of Public Instruction Dr. Jennifer McCormick releases 2020 Legislative Priorities for IDOE including requiring educator preparation programs to prepare new practitioners in state-recognized computer science programs (Appendix FF)
  - Attendance at CS Policy Academy co-hosted by Education Commission of the States (ECS) and the College Board
- December 2019
  - Attendance at NICE K-12 Cybersecurity Education Conference
  - Announcement of 2020-2021 STEM Acceleration Grant recipients (Appendix GG)
  - Updates to the CTE funding memo impacting computer science courses (Appendix HH)



### Training Snapshot

<b>2018-2019 SY Nextech Computer Science Training Numbers (June 2018 - July 2019)</b>				
<b>Workshop</b>	<b>Description</b>	<b>Target Number of Participants</b>	<b>Number Trained to Date</b>	<b>Progress Toward Target</b>
Computer Science Principles (CSP)	Nine-day professional development experience for high school teachers including five-day intensive training in the summer followed by quarterly Saturday workshops during the school year	44	44	100.00%
Computer Science Discoveries (CSD)	Nine-day professional development experience for middle and high school teachers including five-day intensive training in the summer followed by quarterly Saturday workshops during the school year	60	60	100.00%
Integrating CS in Middle School (ICS)	One- or two-day workshop targeting middle school (6-8) teachers	120	207	172.50%
Computer Science Fundamentals (CSF)	One- or two-day workshop targeting elementary (K-5) teachers	520	744	143.08%
SCRIPT (districts)	One- or two-day workshop for district teams	16	66	412.50%
Cybersecurity Workshop	Three-day cybersecurity training for high school teachers including one day of industry exposure	24	32	133.33%
Java Workshop	Four-day intensive Java training for high school teachers	12	14	116.67%
Classroom to Career Experiences	One-day computer science industry experiences for K-12 teachers	36	37	102.78%

#### Additional considerations:

- These numbers represent only teachers of public and public charter schools. Additional private/parochial teachers and after school/extracurricular professionals have also been trained.
  - Computer Science Principles - 6
  - Computer Science Discoveries - 7
  - Integrating CS in Middle School - 10
  - Computer Science Fundamentals - 28

## Status of Public Schools in Meeting Computer Science Curriculum Requirements

### Grades K-8

Prior to SEA 172, there was limited availability of computer science-specific data for grades K-8. IDOE has identified the following as currently available indicators of progress at the K-8 level.

TEACHERS TRAINED IN CURRICULUM APPROPRIATE FOR MIDDLE SCHOOL	
Computer Science Discoveries	110
Integrating CS in Middle School	230
Computer Science Fundamentals	901

RELEVANT MS COURSE ENROLLMENT TRENDS					
Course	Year				
	2014-15	2015-16	2016-17	2017-18	2018-19
Digital Citizenship	0	8923	15881	18277	23790
Middle Level Business	72702	64057	58708	57884	53004
Introduction to CS	92	22	22	89	364

Plans for future collection of K-8 CS implementation data collection:

- Creation of middle school computer science course - data available beginning SY 2020-2021
- Creation of elementary computer science subject code
- Computer science element added to STEM Certification Rubric

### Grades 9-12

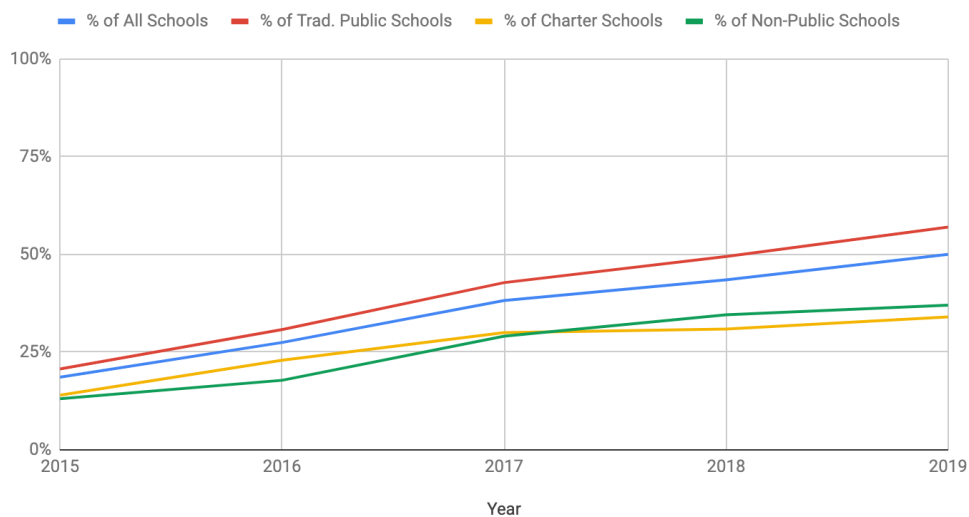
ALL SCHOOLS			
Year	# of Schools	# of Schools Offering At Least 1 CS Course	% of School
2015	528	98	19%
2016	521	143	27%
2017	526	201	38%
2018	531	231	44%
2019	537	271	50%

TRADITIONAL PUBLICS			
Year	# of Schools	# of Schools Offering At Least 1 CS Course	% of School
2015	387	80	21%
2016	377	116	31%
2017	374	160	43%
2018	372	184	49%
2019	369	210	57%

CHARTER PUBLICS			
Year	# of Schools	# of Schools Offering At Least 1 CS Course	% of School
2015	43	6	14%
2016	48	11	23%
2017	50	15	30%
2018	55	17	31%
2019	53	18	34%

NON PUBLIC SCHOOLS			
Year	# of Schools	# of Schools Offering At Least 1 CS Course	% of School
2015	92	12	13%
2016	90	16	18%
2017	86	25	29%
2018	84	29	35%
2019	108	40	37%

High Schools with CS Course Completions Over Time



TRADITIONAL PUBLIC SCHOOLS WITHOUT CS COURSE										
LOCALE	YEAR									
	2015		2016		2017		2018		2019	
	Count	%	Count	%	Count	%	Count	%	Count	%
City: Large	20	71%	18	67%	11	39%	9	33%	6	32%
City: Midsize	8	89%	8	89%	8	89%	3	33%	4	44%
City: Small	22	71%	17	59%	15	52%	11	39%	11	41%
Suburb: Large	33	58%	25	45%	21	39%	22	41%	20	37%
Suburb: Midsize	5	83%	3	50%	2	33%	1	17%	1	17%
Suburb: Small	5	100%	5	100%	5	100%	3	60%	2	40%
Town: Distant	42	81%	37	74%	29	58%	26	52%	24	49%
Town: Fringe	18	90%	15	75%	11	55%	11	55%	8	40%
Town: Remote	2	100%	2	100%	2	100%	1	50%	0	0%
Rural: Distant	87	86%	82	81%	70	69%	63	62%	50	50%
Rural: Fringe	52	84%	39	64%	33	54%	31	51%	24	39%
Rural: Remote	3	75%	3	75%	2	50%	2	50%	2	50%

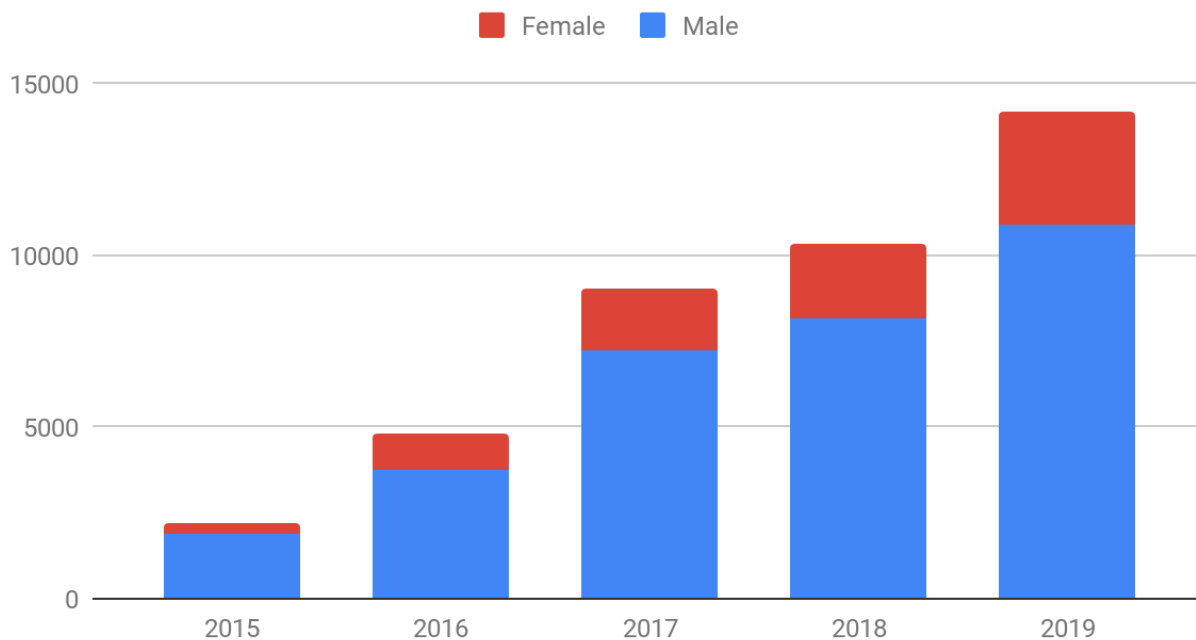
CHARTER PUBLIC SCHOOLS WITHOUT A CS COURSE									
2014-15		2015-16		2016-17		2017-18		2018-19	
Count	%	Count	%	Count	%	Count	%	Count	%
37	86%	37	77%	35	70%	38	69%	35	66%

NON-PUBLIC SCHOOLS WITHOUT A CS COURSE									
2014-15		2015-16		2016-17		2017-18		2018-19	
Count	%	Count	%	Count	%	Count	%	Count	%
80	87%	74	82%	61	71%	55	65%	68	63%

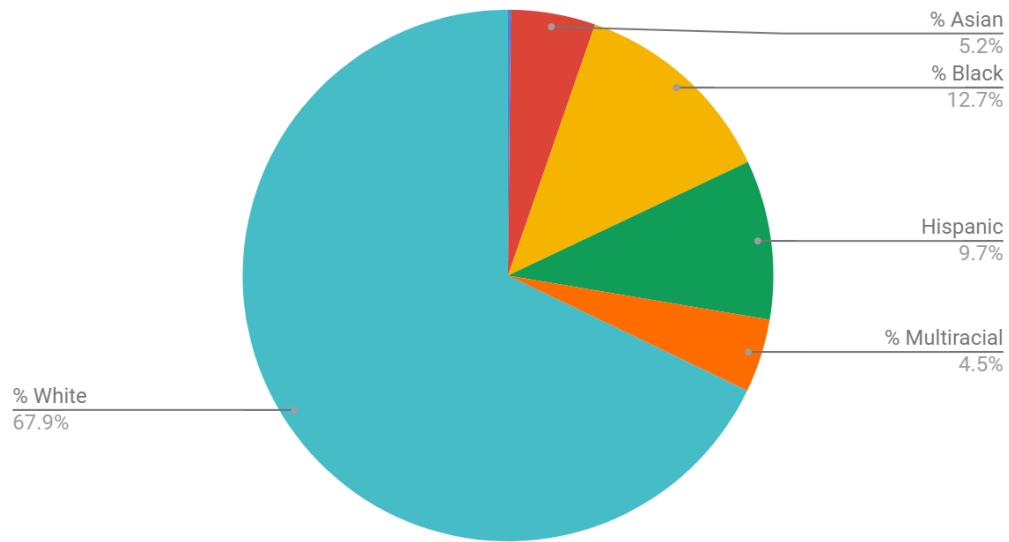
2018-19 COUNTIES WITH NO CS OFFERED IN TRAD PUBLIC HS		
Blackford	Jennings	Rush
Cass	Lawrence	Sullivan
Decatur	Ohio	Tipton
Fayette	Owen	Union
Franklin	Pulaski	Vermillion

Course Completions by High School Course					
Course	School Year				
	2014-15	2015-16	2016-17	2017-18	2018-19
Introduction to CS	313	1433	2467	3605	5460
CS I	283	1594	3806	3654	4918
CS II	681	754	947	929	966
CS III: Special Topics	0	37	93	132	211
CS III: Software Dev	0	0	0	0	0
CS III: Databases	0	0	1	19	34
CS III: Informatics	0	1	35	48	19
CS III: Cybersecurity	0	0	0	0	11
AP CS A	900	963	1070	1098	1181
AP CS Principles	0	0	560	789	1329
CS Standard Level, IB	0	28	33	29	30
CS Higher Level, IB	0	0	0	0	0
Cambridge Int AS and A	0	0	0	0	0
<b>Total</b>	<b>2177</b>	<b>4810</b>	<b>9012</b>	<b>10303</b>	<b>14159</b>

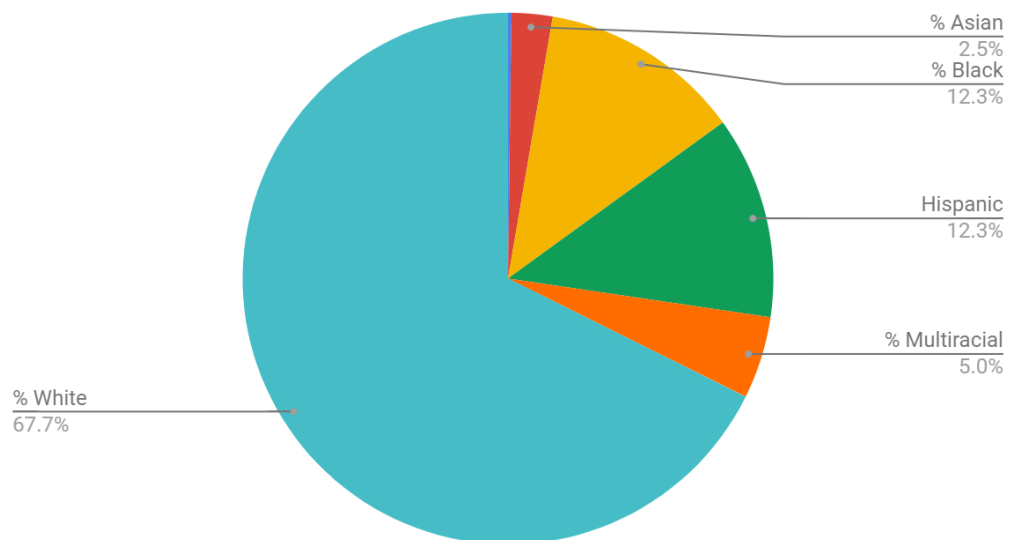
## CS Course Completions by Gender Over Time



2019 Course Completions by Race



2019 Overall Student Population by Race



**Additional Data**

- January 2017-October 2018
  - IDOE Outcomes Supporting Governor's NextLevel Agenda (Appendix II)
- June 2018-Present
  - Computer Science Fundamentals Workshop Offerings (Appendix JJ)
- August 2018-January 2019
  - IDOE Computer Science Support activities (Appendix KK)
- September 2018-Present
  - SCRIPT Workshop Offerings (Appendix LL)
- October 2018-Present
  - Integrating Computer Science in Middle School Workshop Offerings (Appendix MM)
- December 2018
  - Computer Science Pathway Model Created (Appendix NN)

## Appendices

Appendix A - Initial Nextech Contract

Appendix B - Amendment to Course Titles and Descriptions 2018-2019

Appendix C - 2018-2019 STEM K-6 Acceleration Grant Awardees

Appendix D - Nextech Budget Estimate Forecast 2018-2022

Appendix E - IDOE/PLTW Cybersecurity Pilot Grant Recipients

Appendix F - IC 20-30-5-23 - Next Level Computer Science Program

Appendix G - Taking CS in Indiana to the Next Level

Appendix H - IDOE/Girls Who Code Partnership, Girls Who Code Partnership Map, List of Indiana Girls Who Code Clubs

Appendix I - Computer Science Champs

Appendix J - IC 20-30-5-23 - Computer Science Education

Appendix K - Nextech One-Day Middle School Standards Workshop Schedule

Appendix L - Updated Computer Science Assignment Codes

Appendix M - Nextech Contract Amendment #1

Appendix N - IDOE STEM Six-Year Strategic Plan

Appendix O - CS Training Badge

Appendix P - 2019-2020 STEM K-6 Acceleration Grant Cohort 2 Awardees

Appendix Q - IDOE/PLTW Cybersecurity Grant Recipients

Appendix R - Introduction to Computational Thinking for Every Educator Online Course Syllabus

Appendix S - CTE Funding Memo Updates

Appendix T - Code.org Advocacy Coalition's Nine Policy Recommendations, IDOE Press Release

Appendix U - Computer Science Curriculum Showcase Agenda, Vendor Information

Appendix V - Indiana Department of Education Academic Standards Course Framework: Computer Science, Middle Level

Appendix W - Core 40 Science Requirement Recommendations

Appendix X - Nextech Contract Amendment #2

Appendix Y - Indiana STEM Playbook - 2019-2025

Appendix Z - Updated Computer Science Assignment Codes

Appendix AA - IC 20-30-5-23 - Computer Science Education

Appendix BB - Computer Science Element of Updated STEM Certification Rubric

Appendix CC - State Computer Science Competition/Challenge

Appendix DD - Evidence-Based STEM Curriculum, Computer Science Curriculum



Appendix EE - STEM and Computer Science Curriculum Showcase Agenda

Appendix FF - Indiana Department of Education 2020 Legislative Priorities

Appendix GG - 2020-2021 STEM Acceleration Grant Recipients

Appendix HH - CTE Funding Memo Updates

Appendix II - Indiana Department of Education Outcomes Supporting Governor's NextLevel Agenda

Appendix JJ - Computer Science Fundamentals Workshop Offerings

Appendix KK - IDOE Computer Science Support Activities

Appendix LL - SCRIPT Workshop Offerings, SCRIPT Participating Schools Map

Appendix MM - Integrating Computer Science in Middle School Workshop Offerings

Appendix NN - Computer Science Pathway Information

Please contact Jake Koressel ([jkoressel@doe.in.gov](mailto:jkoressel@doe.in.gov)) with any questions.

## PROFESSIONAL SERVICES CONTRACT

Contract #0000000000000000000026238

This Contract ("this Contract"), entered into by and between Indiana Department of Education (the "State") and NEXTECH.ORG INC. (the "Contractor"), is executed pursuant to the terms and conditions set forth herein. In consideration of those mutual undertakings and covenants, the parties agree as follows:

### 1. Duties of Contractor

The Contractor shall provide the following services relative to this Contract:

The Contractor will facilitate a series of professional development (PD) programs for grade-specific Computer Science curriculum as required of the State per IC 20-20-45 Section 1: Sec. 10. Details of the Duties are described in **Exhibit A** attached and fully incorporated by reference.

### 2. Consideration

The Contractor will be paid the amounts included in **Exhibit A** for performing the duties set forth above. Total remuneration under this Contract shall not exceed \$70,000.

### 3. Term

This Contract shall commence on June 01, 2018 and shall remain in effect through July 01, 2019.

### 4. Access to Records

The Contractor and its subcontractors, if any, shall maintain all books, documents, papers, accounting records, and other evidence pertaining to all costs incurred under this Contract. They shall make such materials available at their respective offices at all reasonable times during this Contract, and for three (3) years from the date of final payment under this Contract, for inspection by the State or its authorized designees. Copies shall be furnished at no cost to the State if requested.

### 5. Assignment; Successors

The Contractor binds its successors and assignees to all the terms and conditions of this Contract. The Contractor shall not assign or subcontract the whole or any part of this Contract without the State's prior written consent. The Contractor may assign its right to receive payments to such third parties as the Contractor may desire without the prior written consent of the State, provided that the Contractor gives written notice (including evidence of such assignment) to the State thirty (30) days in advance of any payment so assigned. The assignment shall cover all unpaid amounts under this Contract and shall not be made to more than one party.

### 6. Assignment of Antitrust Claims

As part of the consideration for the award of this Contract, the Contractor assigns to the State all right, title, and interest in and to any claims the Contractor now has, or may acquire, under state or federal antitrust laws relating to the products or services which are the subject of this Contract.

## 7. Audits

The Contractor acknowledges that it may be required to submit to an audit of funds paid through this Contract. Any such audit shall be conducted in accordance with IC §5-11-1, et. seq. and audit guidelines specified by the State.

The State considers the Contractor to be a "Contractor" under 2 C.F.R. 200.330 for purposes of this Contract. However, if required by applicable provisions of 2 C.F.R. 200 (Uniform Administrative Requirements, Cost Principles, and Audit Requirements), Contractor shall arrange for a financial and compliance audit, which complies with 2 C.F.R. 200.500 et seq.

## 8. Authority to Bind Contractor

The signatory for the Contractor represents that he/she has been duly authorized to execute this Contract on behalf of the Contractor and has obtained all necessary or applicable approvals to make this Contract fully binding upon the Contractor when his/her signature is affixed, and accepted by the State.

## 9. Changes in Work

The Contractor shall not commence any additional work or change the scope of the work until authorized in writing by the State. The Contractor shall make no claim for additional compensation in the absence of a prior written approval and amendment executed by all signatories hereto. This Contract may only be amended, supplemented or modified by a written document executed in the same manner as this Contract.

## 10. Compliance with Laws

- A. The Contractor shall comply with all applicable federal, state, and local laws, rules, regulations, and ordinances, and all provisions required thereby to be included herein are hereby incorporated by reference. The enactment or modification of any applicable state or federal statute or the promulgation of rules or regulations thereunder after execution of this Contract shall be reviewed by the State and the Contractor to determine whether the provisions of this Contract require formal modification.
- B. The Contractor and its agents shall abide by all ethical requirements that apply to persons who have a business relationship with the State as set forth in IC §4-2-6, et seq., IC §4-2-7, et seq., and the regulations promulgated thereunder. **If the Contractor has knowledge, or would have acquired knowledge with reasonable inquiry, that a state officer, employee, or special state appointee, as those terms are defined in IC 4-2-6-1, has a financial interest in the Contract, the Contractor shall ensure compliance with the disclosure requirements in IC 4-2-6-10.5 prior to the execution of this contract.** If the Contractor is not familiar with these ethical requirements, the Contractor should refer any questions to the Indiana State Ethics Commission, or visit the Inspector General's website at <http://www.in.gov/ig/>. If the Contractor or its agents violate any applicable ethical standards, the State may, in its sole discretion, terminate this Contract immediately upon notice to the Contractor. In addition, the Contractor may be subject to penalties under IC §§4-2-6, 4-2-7, 35-44.1-1-4, and under any other applicable laws.
- C. The Contractor certifies by entering into this Contract that neither it nor its principal(s) is presently in arrears in payment of taxes, permit fees or other statutory, regulatory or judicially required payments to the State of Indiana. The Contractor agrees that any payments currently due to the State of Indiana may be withheld from payments due to the Contractor. Additionally, further work or payments may be withheld, delayed, or denied

and/or this Contract suspended until the Contractor is current in its payments and has submitted proof of such payment to the State.

- D. The Contractor warrants that it has no current, pending or outstanding criminal, civil, or enforcement actions initiated by the State, and agrees that it will immediately notify the State of any such actions. During the term of such actions, the Contractor agrees that the State may delay, withhold, or deny work under any supplement, amendment, change order or other contractual device issued pursuant to this Contract.
- E. If a valid dispute exists as to the Contractor's liability or guilt in any action initiated by the State or its agencies, and the State decides to delay, withhold, or deny work to the Contractor, the Contractor may request that it be allowed to continue, or receive work, without delay. The Contractor must submit, in writing, a request for review to the Indiana Department of Administration (IDOA) following the procedures for disputes outlined herein. A determination by IDOA shall be binding on the parties. Any payments that the State may delay, withhold, deny, or apply under this section shall not be subject to penalty or interest, except as permitted by IC §5-17-5.
- F. The Contractor warrants that the Contractor and its subcontractors, if any, shall obtain and maintain all required permits, licenses, registrations, and approvals, and shall comply with all health, safety, and environmental statutes, rules, or regulations in the performance of work activities for the State. Failure to do so may be deemed a material breach of this Contract and grounds for immediate termination and denial of further work with the State.
- G. The Contractor affirms that, if it is an entity described in IC Title 23, it is properly registered and owes no outstanding reports to the Indiana Secretary of State.
- H. As required by IC §5-22-3-7:
  - 1. The Contractor and any principals of the Contractor certify that:
    - (A) the Contractor, except for de minimis and nonsystematic violations, has not violated the terms of:
      - (i) IC §24-4.7 [Telephone Solicitation Of Consumers];
      - (ii) IC §24-5-12 [Telephone Solicitations]; or
      - (iii) IC §24-5-14 [Regulation of Automatic Dialing Machines]; in the previous three hundred sixty-five (365) days, even if IC §24-4.7 is preempted by federal law; and
    - (B) The Contractor will not violate the terms of IC §24-4.7 for the duration of the Contract, even if IC §24-4.7 is preempted by federal law.
  - 2. The Contractor and any principals of the Contractor certify that an affiliate or principal of the Contractor and any agent acting on behalf of the Contractor or on behalf of an affiliate or principal of the Contractor, except for de minimis and nonsystematic violations,
    - (A) has not violated the terms of IC §24-4.7 in the previous three hundred sixty-five (365) days, even if IC §24-4.7 is preempted by federal law; and
    - (B) (B) will not violate the terms of IC §24-4.7 for the duration of the Contract, even if IC §24-4.7 is preempted by federal law.

## 11. Condition of Payment

All services provided by the Contractor under this Contract must be performed to the State's reasonable satisfaction, as determined at the discretion of the undersigned State representative and in accordance with all applicable federal, state, local laws, ordinances, rules and regulations. The State shall not be required to pay for work found to be unsatisfactory, inconsistent with this

Contract or performed in violation of any federal, state or local statute, ordinance, rule or regulation.

## **12. Confidentiality of State Information**

The Contractor understands and agrees that data, materials, and information disclosed to the Contractor may contain confidential and protected information. The Contractor covenants that data, material, and information gathered, based upon or disclosed to the Contractor for the purpose of this Contract will not be disclosed to or discussed with third parties without the prior written consent of the State.

The parties acknowledge that the services to be performed by Contractor for the State under this Contract may require or allow access to data, materials, and information containing Social Security numbers maintained by the State in its computer system or other records. In addition to the covenant made above in this section and pursuant to 10 IAC 5-3-1(4), the Contractor and the State agree to comply with the provisions of IC §4-1-10 and IC §4-1-11. If any Social Security number(s) is/are disclosed by Contractor, Contractor agrees to pay the cost of the notice of disclosure of a breach of the security of the system in addition to any other claims and expenses for which it is liable under the terms of this contract.

## **13. Continuity of Services**

- A. The Contractor recognizes that the service(s) to be performed under this Contract are vital to the State and must be continued without interruption and that, upon Contract expiration, a successor, either the State or another contractor, may continue them. The Contractor agrees to:
  - 1. Furnish phase-in training; and
  - 2. Exercise its best efforts and cooperation to effect an orderly and efficient transition to a successor.
- B. The Contractor shall, upon the State's written notice:
  - 1. Furnish phase-in, phase-out services for up to sixty (60) days after this Contract expires; and
  - 2. Negotiate in good faith a plan with a successor to determine the nature and extent of phase-in, phase-out services required. The plan shall specify a training program and a date for transferring responsibilities for each division of work described in the plan, and shall be subject to the State's approval. The Contractor shall provide sufficient experienced personnel during the phase-in, phase-out period to ensure that the services called for by this Contract are maintained at the required level of proficiency.
- C. The Contractor shall allow as many personnel as practicable to remain on the job to help the successor maintain the continuity and consistency of the services required by this Contract. The Contractor also shall disclose necessary personnel records and allow the successor to conduct on-site interviews with these employees. If selected employees are agreeable to the change, the Contractor shall release them at a mutually agreeable date and negotiate transfer of their earned fringe benefits to the successor.
- D. The Contractor shall be reimbursed for all reasonable phase-in, phase-out costs (i.e., costs incurred within the agreed period after contract expiration that result from phase-in, phase-out operations).

#### 14. Debarment and Suspension

The Contractor certifies by entering into this Contract that neither it nor its principals nor any of its subcontractors are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from entering into this Contract by any federal agency or by any department, agency or political subdivision of the State of Indiana. The term "principal" for purposes of this Contract means an officer, director, owner, partner, key employee or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Contractor.

The Contractor certifies that it has verified the state and federal suspension and debarment status for all subcontractors receiving funds under this Contract and shall be solely responsible for any recoupment, penalties or costs that might arise from use of a suspended or debarred subcontractor. The Contractor shall immediately notify the State if any subcontractor becomes debarred or suspended, and shall, at the State's request, take all steps required by the State to terminate its contractual relationship with the subcontractor for work to be performed under this Contract.

#### 15. Default by State

If the State, sixty (60) days after receipt of written notice, fails to correct or cure any material breach of this Contract, the Contractor may cancel and terminate this Contract and institute measures to collect monies due up to and including the date of termination.

#### 16. Disputes

- A. Should any disputes arise with respect to this Contract, the Contractor and the State agree to act immediately to resolve such disputes. Time is of the essence in the resolution of disputes.
- B. The Contractor agrees that, the existence of a dispute notwithstanding, it will continue without delay to carry out all of its responsibilities under this Contract that are not affected by the dispute. Should the Contractor fail to continue to perform its responsibilities regarding all non-disputed work, without delay, any additional costs incurred by the State or the Contractor as a result of such failure to proceed shall be borne by the Contractor, and the Contractor shall make no claim against the State for such costs.
- C. If the parties are unable to resolve a contract dispute between them after good faith attempts to do so, a dissatisfied party shall submit the dispute to the Commissioner of the Indiana Department of Administration for resolution. The dissatisfied party shall give written notice to the Commissioner and the other party. The notice shall include (1) a description of the disputed issues, (2) the efforts made to resolve the dispute, and (3) a proposed resolution. The Commissioner shall promptly issue a Notice setting out documents and materials to be submitted to the Commissioner in order to resolve the dispute; the Notice may also afford the parties the opportunity to make presentations and enter into further negotiations. Within thirty (30) business days of the conclusion of the final presentations, the Commissioner shall issue a written decision and furnish it to both parties. The Commissioner's decision shall be the final and conclusive administrative decision unless either party serves on the Commissioner and the other party, within ten (10) business days after receipt of the Commissioner's decision, a written request for reconsideration and modification of the written decision. If the Commissioner does not modify the written decision within thirty (30) business days, either party may take such other action helpful to resolving the dispute, including submitting the dispute to an Indiana court of competent jurisdiction. If the parties accept

the Commissioner's decision, it may be memorialized as a written Amendment to this Contract if appropriate.

- D. The State may withhold payments on disputed items pending resolution of the dispute. The unintentional nonpayment by the State to the Contractor of one or more invoices not in dispute in accordance with the terms of this Contract will not be cause for the Contractor to terminate this Contract, and the Contractor may bring suit to collect these amounts without following the disputes procedure contained herein.
- E. With the written approval of the Commissioner of the Indiana Department of Administration, the parties may agree to forego the process described in subdivision C. relating to submission of the dispute to the Commissioner.
- F. This paragraph shall not be construed to abrogate provisions of Ind. Code 4-6-2-11 in situations where dispute resolution efforts lead to a compromise of claims in favor of the State as described in that statute. In particular, releases or settlement agreements involving releases of legal claims or potential legal claims of the state should be processed consistent with Ind. Code 4-6-2-11, which requires approval of the Governor and Attorney General.

## **17. Drug-Free Workplace Certification**

As required by Executive Order No. 90-5 dated April 12, 1990, issued by the Governor of Indiana, the Contractor hereby covenants and agrees to make a good faith effort to provide and maintain a drug-free workplace. The Contractor will give written notice to the State within ten (10) days after receiving actual notice that the Contractor, or an employee of the Contractor in the State of Indiana, has been convicted of a criminal drug violation occurring in the workplace. False certification or violation of this certification may result in sanctions including, but not limited to, suspension of contract payments, termination of this Contract and/or debarment of contracting opportunities with the State for up to three (3) years.

In addition to the provisions of the above paragraph, if the total amount set forth in this Contract is in excess of \$25,000.00, the Contractor certifies and agrees that it will provide a drug-free workplace by:

- A. Publishing and providing to all of its employees a statement notifying them that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;
- B. Establishing a drug-free awareness program to inform its employees of (1) the dangers of drug abuse in the workplace; (2) the Contractor's policy of maintaining a drug-free workplace; (3) any available drug counseling, rehabilitation and employee assistance programs; and (4) the penalties that may be imposed upon an employee for drug abuse violations occurring in the workplace;
- C. Notifying all employees in the statement required by subparagraph (A) above that as a condition of continued employment, the employee will (1) abide by the terms of the statement; and (2) notify the Contractor of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction;
- D. Notifying the State in writing within ten (10) days after receiving notice from an employee under subdivision (C)(2) above, or otherwise receiving actual notice of such conviction;
- E. Within thirty (30) days after receiving notice under subdivision (C)(2) above of a conviction, imposing the following sanctions or remedial measures on any employee who

is convicted of drug abuse violations occurring in the workplace: (1) taking appropriate personnel action against the employee, up to and including termination; or (2) requiring such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state or local health, law enforcement, or other appropriate agency; and

- F. Making a good faith effort to maintain a drug-free workplace through the implementation of subparagraphs (A) through (E) above.

## **18. Employment Eligibility Verification**

As required by IC §22-5-1.7, the Contractor swears or affirms under the penalties of perjury that the Contractor does not knowingly employ an unauthorized alien. The Contractor further agrees that:

- A. The Contractor shall enroll in and verify the work eligibility status of all his/her/its newly hired employees through the E-Verify program as defined in IC §22-5-1.7-3. The Contractor is not required to participate should the E-Verify program cease to exist. Additionally, the Contractor is not required to participate if the Contractor is self-employed and does not employ any employees.
- B. The Contractor shall not knowingly employ or contract with an unauthorized alien. The Contractor shall not retain an employee or contract with a person that the Contractor subsequently learns is an unauthorized alien.
- C. The Contractor shall require his/her/its subcontractors, who perform work under this Contract, to certify to the Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Contractor agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor.
- D. The State may terminate for default if the Contractor fails to cure a breach of this provision no later than thirty (30) days after being notified by the State.

## **19. Employment Option**

If the State determines that it would be in the State's best interest to hire an employee of the Contractor, the Contractor will release the selected employee from any non-compete agreements that may be in effect. This release will be at no cost to the State or the employee.

## **20. Force Majeure**

In the event that either party is unable to perform any of its obligations under this Contract or to enjoy any of its benefits because of natural disaster or decrees of governmental bodies not the fault of the affected party (hereinafter referred to as a "Force Majeure Event"), the party who has been so affected shall immediately or as soon as is reasonably possible under the circumstances give notice to the other party and shall do everything possible to resume performance. Upon receipt of such notice, all obligations under this Contract shall be immediately suspended. If the period of nonperformance exceeds thirty (30) days from the receipt of notice of the Force Majeure Event, the party whose ability to perform has not been so affected may, by giving written notice, terminate this Contract.



## **21. Funding Cancellation**

When the Director of the State Budget Agency makes a written determination that funds are not appropriated or otherwise available to support continuation of performance of this Contract, this Contract shall be canceled. A determination by the Director of State Budget Agency that funds are not appropriated or otherwise available to support continuation of performance shall be final and conclusive.

## **22. Governing Law**

This Contract shall be governed, construed, and enforced in accordance with the laws of the State of Indiana, without regard to its conflict of laws rules. Suit, if any, must be brought in the State of Indiana.

## **23. HIPAA Compliance**

If this Contract involves services, activities or products subject to the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the Contractor covenants that it will appropriately safeguard Protected Health Information (defined in 45 CFR 160.103), and agrees that it is subject to, and shall comply with, the provisions of 45 CFR 164 Subpart E regarding use and disclosure of Protected Health Information.

## **24. Indemnification**

The Contractor agrees to indemnify, defend, and hold harmless the State, its agents, officials, and employees from all third party claims and suits including court costs, attorney's fees, and other expenses caused by any act or omission of the Contractor and/or its subcontractors, if any, in the performance of this Contract. The State shall not provide such indemnification to the Contractor.

## **25. Independent Contractor; Workers' Compensation Insurance**

The Contractor is performing as an independent entity under this Contract. No part of this Contract shall be construed to represent the creation of an employment, agency, partnership or joint venture agreement between the parties. Neither party will assume liability for any injury (including death) to any persons, or damage to any property, arising out of the acts or omissions of the agents, employees or subcontractors of the other party. The Contractor shall provide all necessary unemployment and workers' compensation insurance for the Contractor's employees, and shall provide the State with a Certificate of Insurance evidencing such coverage prior to starting work under this Contract.

## **26. Information Technology Enterprise Architecture Requirements**

If the Contractor provides any information technology related products or services to the State, the Contractor shall comply with all IOT standards, policies and guidelines, which are online at <http://iot.in.gov/architecture/>. The Contractor specifically agrees that all hardware, software and services provided to or purchased by the State shall be compatible with the principles and goals contained in the electronic and information technology accessibility standards adopted under Section 508 of the Federal Rehabilitation Act of 1973 (29 U.S.C. 794d) and IC 4-13.1-3. Any deviation from these architecture requirements must be approved in writing by IOT in advance. The State may terminate this Contract for default if the Contractor fails to cure a breach of this provision within a reasonable time.

## 27. Insurance

- A. The Contractor and their subcontractors ( if any) shall secure and keep in force during the term of this Contract the following insurance coverages (if applicable) covering the Contractor for any and all claims of any nature which may in any manner arise out of or result from Contractor's performance under this Contract:
1. Commercial general liability, including contractual coverage, and products or completed operations coverage (if applicable), with minimum liability limits not less than \$700,000 per person and \$5,000,000 per occurrence unless additional coverage is required by the State. The State is to be named as an additional insured on a primary, non-contributory basis for any liability arising directly or indirectly under or in connection with this Contract.
  2. Automobile liability for owned, non-owned and hired autos with minimum liability limits of \$700,000 per person and \$5,000,000 per occurrence. The State is to be named as an additional insured on a primary, non-contributory basis.
  3. Errors and Omissions liability with minimum liability limits of \$1,000,000 per claim and in the aggregate. Coverage for the benefit of the State shall continue for a period of two (2) years after the date of service provided under this Contract.
  4. Fiduciary Liability is required if the Contractor is responsible for the management and oversight of various employee benefit plans and programs such as pensions, profit-sharing and savings, among others. These contractors face potential claims for mismanagement brought by plan members. Limits should be no less than \$700,000 per cause of action and \$5,000,000 per occurrence.
  5. Valuable Papers coverage, available under an Inland Marine policy, is required when any plans, drawings, media, data, records, reports, billings and other documents are produced or used under this agreement. Insurance must have limits sufficient to pay for the re-creation and reconstruction of such records.
  6. The Contractor shall secure the appropriate Surety or Fidelity Bond(s) as required by the state department served or by applicable statute.
  7. The Contractor shall provide proof of such insurance coverage by tendering to the undersigned State representative a certificate of insurance prior to the commencement of this Contract and proof of workers' compensation coverage meeting all statutory requirements of IC §22-3-2. In addition, proof of an "all states endorsement" covering claims occurring outside the State is required if any of the services provided under this Contract involve work outside of Indiana.
- B. The Contractor's insurance coverage must meet the following additional requirements:
1. The insurer must have a certificate of authority or other appropriate authorization to operate in the state in which the policy was issued.
  2. Any deductible or self-insured retention amount or other similar obligation under the insurance policies shall be the sole obligation of the Contractor.
  3. The State will be defended, indemnified and held harmless to the full extent of any coverage actually secured by the Contractor in excess of the minimum requirements set forth above. The duty to indemnify the State under this Contract shall not be limited by the insurance required in this Contract.

4. The insurance required in this Contract, through a policy or endorsement(s), shall include a provision that the policy and endorsements may not be canceled or modified without thirty (30) days' prior written notice to the undersigned State agency.
  5. The Contractor waives and agrees to require their insurer to waive their rights of subrogation against the State of Indiana.
- C. Failure to provide insurance as required in this Contract may be deemed a material breach of contract entitling the State to immediately terminate this Contract. The Contractor shall furnish a certificate of insurance and all endorsements to the State before the commencement of this Contract.

## **28. Key Person(s) (Clause deleted by agreement of the parties)**

## **29. Licensing Standards**

The Contractor, its employees and subcontractors shall comply with all applicable licensing standards, certification standards, accrediting standards and any other laws, rules, or regulations governing services to be provided by the Contractor pursuant to this Contract. The State will not pay the Contractor for any services performed when the Contractor, its employees or subcontractors are not in compliance with such applicable standards, laws, rules, or regulations. If any license, certification or accreditation expires or is revoked, or any disciplinary action is taken against an applicable license, certification, or accreditation, the Contractor shall notify the State immediately and the State, at its option, may immediately terminate this Contract.

## **30. Merger & Modification**

This Contract constitutes the entire agreement between the parties. No understandings, agreements, or representations, oral or written, not specified within this Contract will be valid provisions of this Contract. This Contract may not be modified, supplemented, or amended, except by written agreement signed by all necessary parties.

## **31. Minority and Women's Business Enterprises Compliance**

Award of this Contract was based, in part, on the MBE/WBE participation plan. The following certified MBE or WBE subcontractors will be participating in this Contract:

MBE/WBE	PHONE	COMPANY NAME	SCOPE OF PRODUCTS and/or SERVICES	UTILIZATION DATE	PERCENT
None					0.000

A copy of each subcontractor agreement must be submitted to IDOA's MBE/WBE Division within thirty (30) days of the effective date of this Contract. Failure to provide a copy of any subcontractor agreement will be deemed a violation of the rules governing MBE/WBE procurement, and may result in sanctions allowable under 25 IAC 5-7-8. Failure to provide any subcontractor agreement may also be considered a material breach of this Contract. The Contractor must obtain approval from IDOA's MBE/WBE Division before changing the participation plan submitted in connection with this Contract.

The Contractor shall report payments made to MBE/WBE Division subcontractors under this Contract on a monthly basis. Monthly reports shall be made using the online audit tool,

commonly referred to as "Pay Audit." MBE/WBE Division subcontractor payments shall also be reported to the Division as reasonably requested and in a format to be determined by Division.

### **32. Nondiscrimination**

Pursuant to the Indiana Civil Rights Law, specifically including IC §22-9-1-10, and in keeping with the purposes of the federal Civil Rights Act of 1964, the Age Discrimination in Employment Act, and the Americans with Disabilities Act, the Contractor covenants that it shall not discriminate against any employee or applicant for employment relating to this Contract with respect to the hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of the employee's or applicant's race, color, national origin, religion, sex, age, disability, ancestry, status as a veteran, or any other characteristic protected by federal, state, or local law ("Protected Characteristics"). Contractor certifies compliance with applicable federal laws, regulations, and executive orders prohibiting discrimination based on the Protected Characteristics in the provision of services. Breach of this paragraph may be regarded as a material breach of this Contract, but nothing in this paragraph shall be construed to imply or establish an employment relationship between the State and any applicant or employee of the Contractor or any subcontractor.

The State is a recipient of federal funds, and therefore, where applicable, Contractor and any subcontractors shall comply with requisite affirmative action requirements, including reporting, pursuant to 41 CFR Chapter 60, as amended, and Section 202 of Executive Order 11246 as amended by Executive Order 13672.

### **33. Notice to Parties**

Whenever any notice, statement or other communication is required under this Contract, it shall be sent by first class mail or via an established courier / delivery service to the following addresses, unless otherwise specifically advised.

Notices to the State shall be sent to:

Amy Rauch, Director of STEM  
Indiana Department of Education  
115 W. Washington Street  
South Tower, Suite 600  
Indianapolis, IN 46204

and

Ben Carter, Director of Workforce & Innovation  
Indiana Department of Education  
115 W. Washington Street  
South Tower, Suite 600  
Indianapolis, IN 46204

Notices to the Contractor shall be sent to:

Stephanie Zircher, Senior Director  
Nextech.org, Inc.  
615 N. Alabama Street  
Suite 119  
Indianapolis, IN 46204

As required by IC §4-13-2-14.8, payments to the Contractor shall be made via electronic funds transfer in accordance with instructions filed by the Contractor with the Indiana Auditor of State.

### **34. Order of Precedence; Incorporation by Reference**

Any inconsistency or ambiguity in this Contract shall be resolved by giving precedence in the following order: (1) this Contract, (2) attachments prepared by the State, and (3) attachments prepared by the Contractor. All attachments, and all documents referred to in this paragraph, are hereby incorporated fully by reference.

### **35. Ownership of Documents and Materials**

- A. All documents, records, programs, applications, data, algorithms, film, tape, articles, memoranda, and other materials (the "Materials") not developed or licensed by the Contractor prior to execution of this Contract, but specifically developed under this Contract shall be considered "work for hire" and the Contractor hereby transfers and assigns any ownership claims to the State so that all Materials will be the property of the State. If ownership interest in the Materials cannot be assigned to the State, the Contractor grants the State a non-exclusive, non-cancelable, perpetual, worldwide royalty-free license to use the Materials and to use, modify, copy and create derivative works of the Materials.
- B. Use of the Materials, other than related to contract performance by the Contractor, without the prior written consent of the State, is prohibited. During the performance of this Contract, the Contractor shall be responsible for any loss of or damage to the Materials developed for or supplied by the State and used to develop or assist in the services provided while the Materials are in the possession of the Contractor. Any loss or damage thereto shall be restored at the Contractor's expense. The Contractor shall provide the State full, immediate, and unrestricted access to the Materials and to Contractor's work product during the term of this Contract.

### **36. Payments**

- A. All payments shall be made 35 days in arrears in conformance with State fiscal policies and procedures and, as required by IC §4-13-2-14.8, the direct deposit by electronic funds transfer to the financial institution designated by the Contractor in writing unless a specific waiver has been obtained from the Indiana Auditor of State. No payments will be made in advance of receipt of the goods or services that are the subject of this Contract except as permitted by IC §4-13-2-20.
- B. The State Budget Agency and the Contractor acknowledge that if the Contractor is being paid in advance for the maintenance of equipment and / or software. Pursuant to IC §4-13-2-20(b)(14), Contractor agrees that if it fails to perform the maintenance required under this Contract, upon receipt of written notice from the State, it shall promptly refund the consideration paid, pro-rated through the date of non-performance.
- C. All accounts will be closed sixty (60) days after the Expiration Date of this Contract Agreement. Any invoice submitted after sixty (60) days may, at the discretion of the State, be denied.
- D. The Contractor agrees to abide by the Contract Budget but may transfer funds from line item to line item for changes of less than ten percent (10%) of the approved budget line items. Budget line item transfers ("LITs") equal to or greater than ten percent (10%) require prior written approval by the State Project Director (or the State Project Director's Designee). Approval for a LIT must be requested before the expenses are incurred.

Transfers will not be approved after expenditures have already been made. A LIT request must be accompanied by an explanation for the changes to each line item. The cumulative amount of any LIT may not exceed 10% of the total budget.

### **37. Penalties/Interest/Attorney's Fees**

The State will in good faith perform its required obligations hereunder and does not agree to pay any penalties, liquidated damages, interest or attorney's fees, except as permitted by Indiana law, in part, IC §5-17-5, IC §34-54-8, IC §34-13-1 and IC § 34-52-2-3.

Notwithstanding the provisions contained in IC §5-17-5, any liability resulting from the State's failure to make prompt payment shall be based solely on the amount of funding originating from the State and shall not be based on funding from federal or other sources.

### **38. Progress Reports**

The Contractor shall submit progress reports to the State upon request. The report shall be oral, unless the State, upon receipt of the oral report, should deem it necessary to have it in written form. The progress reports shall serve the purpose of assuring the State that work is progressing in line with the schedule, and that completion can be reasonably assured on the scheduled date.

### **39. Public Record**

The Contractor acknowledges that the State will not treat this Contract as containing confidential information, and will post this Contract on its website as required by Executive Order 05-07. Use by the public of the information contained in this Contract shall not be considered an act of the State.

### **40. Renewal Option**

This Contract may be renewed under the same terms and conditions, subject to the approval of the Commissioner of the Department of Administration and the State Budget Director in compliance with IC §5-22-17-4. The term of the renewed contract may not be longer than the term of the original contract.

### **41. Severability**

The invalidity of any section, subsection, clause or provision of this Contract shall not affect the validity of the remaining sections, subsections, clauses or provisions of this Contract.

### **42. Substantial Performance**

This Contract shall be deemed to be substantially performed only when fully performed according to its terms and conditions and any written amendments or supplements.

### **43. Taxes**

The State is exempt from most state and local taxes and many federal taxes. The State will not be responsible for any taxes levied on the Contractor as a result of this Contract.

### **44. Termination for Convenience**

This Contract may be terminated, in whole or in part, by the State, which shall include and is not limited to the Indiana Department of Administration and the State Budget Agency whenever, for

any reason, the State determines that such termination is in its best interest. Termination of services shall be effected by delivery to the Contractor of a Termination Notice at least thirty (30) days prior to the termination effective date, specifying the extent to which performance of services under such termination becomes effective. The Contractor shall be compensated for services properly rendered prior to the effective date of termination. The State will not be liable for services performed after the effective date of termination. The Contractor shall be compensated for services herein provided but in no case shall total payment made to the Contractor exceed the original contract price or shall any price increase be allowed on individual line items if canceled only in part prior to the original termination date. For the purposes of this paragraph, the parties stipulate and agree that the Indiana Department of Administration shall be deemed to be a party to this agreement with authority to terminate the same for convenience when such termination is determined by the Commissioner of IDOA to be in the best interests of the State.

#### **45. Termination for Default**

- A. With the provision of thirty (30) days' notice to the Contractor, the State may terminate this Contract in whole or in part if the Contractor fails to:
  - 1. Correct or cure any breach of this Contract; the time to correct or cure the breach may be extended beyond thirty (30) days if the State determines progress is being made and the extension is agreed to by the parties;
  - 2. Deliver the supplies or perform the services within the time specified in this Contract or any extension;
  - 3. Make progress so as to endanger performance of this Contract; or
  - 4. Perform any of the other provisions of this Contract.
- B. If the State terminates this Contract in whole or in part, it may acquire, under the terms and in the manner the State considers appropriate, supplies or services similar to those terminated, and the Contractor will be liable to the State for any excess costs for those supplies or services. However, the Contractor shall continue the work not terminated.
- C. The State shall pay the contract price for completed supplies delivered and services accepted. The Contractor and the State shall agree on the amount of payment for manufacturing materials delivered and accepted and for the protection and preservation of the property. Failure to agree will be a dispute under the Disputes clause. The State may withhold from these amounts any sum the State determines to be necessary to protect the State against loss because of outstanding liens or claims of former lien holders.
- D. The rights and remedies of the State in this clause are in addition to any other rights and remedies provided by law or equity or under this Contract.

#### **46. Travel**

No expenses for travel will be reimbursed unless specifically permitted under the scope of services or consideration provisions. Expenditures made by the Contractor for travel will be reimbursed at the current rate paid by the State and in accordance with the State Travel Policies and Procedures as specified in the current Financial Management Circular. Out-of-state travel requests must be reviewed by the State for availability of funds and for appropriateness per Circular guidelines.

#### **47. Indiana Veteran's Business Enterprise Compliance**

Award of this Contract was based, in part, on the Indiana Veteran's Business Enterprise ("IVBE") participation plan. The following IVBE subcontractors will be participating in this Contract:

IVB	PHONE	COMPANY NAME	SCOPE OF PRODUCTS and/or SERVICES	UTILIZATION DATE	PERCENT
None					0.000

A copy of each subcontractor agreement shall be submitted to IDOA within thirty (30) days of the request. Failure to provide any subcontractor agreement may also be considered a material breach of this Contract. The Contractor must obtain approval from IDOA before changing the IVBE participation plan submitted in connection with this Contract.

The Contractor shall report payments made to IVBE subcontractors under this Contract on a monthly basis. Monthly reports shall be made using the online audit tool, commonly referred to as "Pay Audit." IVBE subcontractor payments shall also be reported to IDOA as reasonably requested and in a format to be determined by IDOA.

#### **48. Waiver of Rights**

No right conferred on either party under this Contract shall be deemed waived, and no breach of this Contract excused, unless such waiver is in writing and signed by the party claimed to have waived such right. Neither the State's review, approval or acceptance of, nor payment for, the services required under this Contract shall be construed to operate as a waiver of any rights under this Contract or of any cause of action arising out of the performance of this Contract, and the Contractor shall be and remain liable to the State in accordance with applicable law for all damages to the State caused by the Contractor's negligent performance of any of the services furnished under this Contract.

#### **49. Work Standards**

The Contractor shall execute its responsibilities by following and applying at all times the highest professional and technical guidelines and standards. If the State becomes dissatisfied with the work product of or the working relationship with those individuals assigned to work on this Contract, the State may request in writing the replacement of any or all such individuals, and the Contractor shall grant such request.

#### **50. State Boilerplate Affirmation Clause**

I swear or affirm under the penalties of perjury that I have not altered, modified, or changed the State's Boilerplate clauses (as defined in the 2016 OAG/ IDOA *Professional Services Contract Manual*) in any way except for the following clauses which are named below:

- 28. **Key Person(s).** (Clause deleted by agreement of the parties)
- 36. **Payments.** (Items C, billing period added and Item D, budget transfer information added)



### Non-Collusion and Acceptance

The undersigned attests, subject to the penalties for perjury, that the undersigned is the Contractor, or that the undersigned is the properly authorized representative, agent, member or officer of the Contractor. Further, to the undersigned's knowledge, neither the undersigned nor any other member, employee, representative, agent or officer of the Contractor, directly or indirectly, has entered into or been offered any sum of money or other consideration for the execution of this Contract other than that which appears upon the face hereof. Furthermore, if the undersigned has knowledge that a state officer, employee, or special state appointee, as those terms are defined in IC 4-2-6-1, has a financial interest in the Contract, the Contractor attests to compliance with the disclosure requirements in IC 4-2-6-10.5.

### Agreement to Use Electronic Signatures

I agree, and it is my intent, to sign this Contract by accessing State of Indiana Supplier Portal using the secure password assigned to me and by electronically submitting this Contract to the State of Indiana. I understand that my signing and submitting this Contract in this fashion is the legal equivalent of having placed my handwritten signature on the submitted Contract and this affirmation. I understand and agree that by electronically signing and submitting this Contract in this fashion I am affirming to the truth of the information contained therein. I understand that this Contract will not become binding on the State until it has been approved by the Department of Administration, the State Budget Agency, and the Office of the Attorney General, which approvals will be posted on the Active Contracts Database:

[https://hr85.gmis.in.gov/psp/pa91prd/EMPLOYEE/EMPL/h/?tab=PAPP\\_GUEST](https://hr85.gmis.in.gov/psp/pa91prd/EMPLOYEE/EMPL/h/?tab=PAPP_GUEST)

In Witness Whereof, Contractor and the State have, through their duly authorized representatives, entered into this Contract. The parties, having read and understood the foregoing terms of this Contract, do by their respective signatures dated below agree to the terms thereof.

NEXTECH.ORG, INC.

By: Karen Jung  
Digitally signed by Karen Jung  
 Date: 2018.04.27 12:51:56  
 -04'00'

Title:

Date:

Indiana Department of Education

By: Tracy K. Brown (for)  
 Title: Dr. Jennifer McCormick  
 Date: McCormick  
Digitally signed by Tracy K. Brown (for) Dr. Jennifer McCormick  
 DN: cn=Tracy K. Brown (for) Dr. Jennifer McCormick, o=Indiana Department of Education, ou=Superintendent of Public Instruction, email=tbrown@doe.in.gov, c=US  
 Date: 2018.05.01 07:45:18 -04'00'

Electronically Approved by: Department of Administration  By: _____ (for) Lesley A. Crane, Commissioner <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>	
Electronically Approved by: State Budget Agency  By: _____ (for) Jason D. Dudich, Director <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>	Electronically Approved as to Form and Legality: Office of the Attorney General  By: _____ (for) Curtis T. Hill, Jr., Attorney General <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>

## Exhibit A

### Summary of Planned Activities

During the Infosys Pathfinders conference (July 2018), Nextech will run a CS for All SCRIPT Trainer workshop to empower all of the statewide Educational Service Centers, selected individuals from the IDOE, and a few statewide CS leaders to offer the CS for ALL SCRIPT district implementation workshops.

- i. Each Educational Service Center will be responsible for setting up their own workshops based on the needs of the schools in their area.
- ii. Nextech will also offer (at least one) two-day district implementation workshop in September 2018. The content will be the same as the content offered at Educational Service Center trainings.

#### Workshop Details:

- 22 workshops
  - All Summer of eLearning sites offer two-day workshops in conjunction with their summer conferences
  - We currently have 8/19 in the works based on interest.
  - 3 general workshops held this summer, not tied to an eLearning conference (dates TBD)
- 2 days per workshops
- 32 attendees per workshop
- 2 paid facilitators per workshop
- Travel needed to all workshops
- Nextech staff onsite for all workshops

## Budget

Category	Indiana Department of Education
Food & Drink	
Program Related	
Materials	\$20,000
Staffing	
Stipends: Facilitators	\$30,400
Travel	\$19,600
<b>Grand Total</b>	<b>\$70,000</b>

Vendor must adhere to approved State travel rates: (\$107/night + 17% tax = \$125.19/night) and R/T mileage to workshop (\$125 estimate only, actual reimbursement will be based on the approved state mileage rate of \$0.38/mile)



DEPARTMENT OF EDUCATION

**Dr. Jennifer McCormick**  
Superintendent of Public Instruction

*Working Together for Student Success***MEMORANDUM**

To: Members of the State Board of Education

From: Stefany Deckard, State CTE Director

Date: March 14, 2018

Re: Amendment to Course Titles and Descriptions 2018-2019

The Indiana Department of Education is seeking approval to amend the 2018-19 Course Titles and Descriptions document to include the following course additions:

To assure that Indiana provides students with the most current offerings to prepare for college and careers, the Department of Education annually updates and distributes the course titles and descriptions for the following school year. Changes for 2018-2019 were presented at the November 2017 State Board meeting. Since that time, additional changes have been identified, based on demand and feedback from a pathway committee comprised of secondary and post-secondary education members as well as business and industry representatives.

**Changes to Indiana's State Approved Course Titles**

The following changes in course titles will expand the offerings available to schools, increase flexibility, and continue development and implementation of Indiana's College and Career Pathways.

**Course Titles To Be Renamed:**

		Current Course Titles	Proposed New Course Titles	
Pathway	Course Code	Name of Course	Course Code	Name of Course
Computer Science	5236	Computer Science II: Programming	5236	Computer Science II
	5251	Computer Science II: Informatics	5251	Computer Science III: Informatics
	5250	Computer Science II: Database	5250	Computer Science III: Database
Network Support	5230	Computer Tech Support	5230	Information Technology Support
	5257	Networking II: Servers and Security	5257	Networking II: Servers



DEPARTMENT OF EDUCATION

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Superintendent of Public Instruction

*Working Together for Student Success***New Course Titles To Be Added:**

Computer Science III: Software Development, Capstone, IT Cluster, Computer Science Pathway -  
(Proposed Course Code 5249)

*Computer Science III: Software Development* focuses on gaining knowledge and acquiring competencies in the processes, techniques and tools used to develop production quality software. The course framework aligns with professional standards and situates software development within the context of a software project, providing focus on requirements development and management; project scheduling; project success metrics; code design, development and review principles; testing procedures; release and revision processes; and project archival. An additional topic provides exposure to career opportunities within the software development field. The final product of this capstone experience is a working software product that adheres to industry standards.

Computer Science III: Cybersecurity, Capstone, IT Cluster, Computer Science Pathway –  
(Proposed Course Code 5253)

*Computer Science III: Cybersecurity* introduces the secure software development process including designing secure applications, writing secure code designed to withstand various types of attacks, and security testing and auditing. It focuses on the security issues a developer faces, common security vulnerabilities and flaws, and security threats. The course explains security principles, strategies, coding techniques, and tools that can help make software fault tolerant and resistant to attacks. Students will write and analyze code that demonstrates specific security development techniques. Students will also learn about cryptography as an indispensable resource for implementing security in real-world applications. Students will learn foundations of cryptography using simple mathematical probability. Information theory, computational complexity, number theory, and algebraic approaches will be covered.

Networking II: Cybersecurity, Capstone, IT Cluster, Network Support Pathway –  
(Proposed Course Code 5245)

*Networking II: Cybersecurity* is a capstone experience of the Network Support Pathway. It builds upon a base knowledge of Information Technology as gained through lower level courses such as IT support and Networking I. This particular capstone course concentrates on the Security field within networking, also called the cybersecurity field. Laboratory and classroom components are used to cover key elements such as Information Security, Systems Security, Network Security, Mobile Security and, Defense and Mitigation Techniques. The core concepts of confidentiality, integrity and availability are covered.

IT Support Capstone, Capstone, IT Cluster, Network Support Pathway –  
(Proposed Course Code 5231)

*IT Support Capstone* is designed to for students to showcase the knowledge gained from the Information Technology Pathway. Through troubleshooting hardware, software, and networks, students problem-solve through a variety of real-world IT problems. Throughout the course, students communicate with other team members and document progress to fix a variety of devices.



DEPARTMENT OF EDUCATION

**Dr. Jennifer McCormick**  
Superintendent of Public Instruction

*Working Together for Student Success***MEMORANDUM**

To: Superintendents and Principals  
 From: Amy Rauch, Director of STEM  
 Date: April 20, 2018  
 Re: 2018-2019 STEM K-6 Acceleration Grant Awardees

**2018-2019 STEM K-6 Acceleration Grant Awardees**

The Indiana General Assembly appropriated funding in the Fiscal Year 2018 to the Indiana Department of Education (IDOE) for Science, Technology, Engineering and Math (STEM) Program Alignment. Grant funds are to be used for research, surveys, and related staff support initiatives. These activities will develop recommendations to improve elementary and secondary student achievement and participation in STEM subjects throughout Indiana to improve coordination among the various STEM programs. Through this opportunity, IDOE will enhance student success by accelerating exposure to and learning in the STEM disciplines for grades K-12.

These grants will also be used for an important research effort to provide Indiana leaders with evidence of impact from STEM activities occurring in classrooms across the state. In an effort to ensure a breadth of STEM practices for research purposes, a variety of awardees implementing various state and nationally recognized curriculum options will be selected as grant recipients.

An investment in integrated, standards based, inquiry-based, real world problem-solving STEM curriculum and professional development is critical in creating a learning environment of rigor, curiosity, and inquiry-based learning. The research base to support learner-centered instruction is identified in *How People Learn* (Donovan & Bransford, 2005), which outlines that a metacognitive approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them.

IDOE received 136 proposals for the competitive grant. Below is a list of the 2018-2019 STEM K-6 Acceleration Grant Awardees:

**Bloomfield School District****Clay Community Schools****Fayette County School Corporation****Lebanon Community School Corporation****M S D Lawrence Township****M S D Southwest Allen County Schools****School City of Mishawaka****Spencer-Owen Community Schools****Tippecanoe School Corporation****Tri-Creek School Corporation****Warrick County School Corporation**



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Nextech Budget Estimate Forecast 2018-2022					
	K-5 PD	Middle School PD	High School PD	Staffing	TOTAL
2018-19	\$60,000	\$158,623	\$256,035	\$130,951	\$605,609
2019-20	\$60,000	\$170,233	\$217,539	\$163,689	\$611,461
2020-21	\$60,000	\$170,233	\$217,539	\$169,752	\$617,524
2021-22	\$60,000	\$170,233	\$217,539	\$168,450	\$616,222
TOTALS	\$240,000	\$669,321	\$908,653	\$632,843	\$2,450,817



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### **IDOE/PLTW Cybersecurity Pilot Grant Recipients**

The following public school districts were awarded a grant for up to \$7,400 from IDOE to cover teacher training and two years of program fees to implement PLTW Cybersecurity curriculum beginning in the 2018-2019 school year.

<b>District Name</b>	<b>School Name</b>
East Noble School Corporation	East Noble High School
Flat Rock-Hawcreek School District	Hauser Jr. Sr. High School
Greater Clark County Schools	Charlestown High School
Indianapolis Lighthouse Charter School	Lighthouse College Prep
MSD Martinsville	Martinsville High School
Plymouth Community School Corp	Plymouth High School
South Bend Community School Corp	James Whitcomb Riley High School





DEPARTMENT OF EDUCATION

**Dr. Jennifer McCormick**  
Superintendent of Public Instruction*Working Together for Student Success***MEMORANDUM**

To: Superintendents, Principals, and CTE Directors

From: Amanda McCammon, Chief of Workforce & STEM Alliances

Date: June 22, 2018

Re: IC 20-30-5-23 - Next Level Computer Science Program

**Background**

After June 30, 2021, each public high school, including each charter school, shall offer at least one (1) computer science course as a one (1) semester elective in the public high school's curriculum at least once each school year for high school students. (b) After June 30, 2021, each public school, including each charter school, shall include computer science in the public school's curriculum for students in kindergarten through grade 12.

**Guidance**

The following high school CS courses may be utilized to meet the above requirements. For detailed course descriptions, please visit <https://www.doe.in.gov/ccr/course-titles-and-descriptions>.

**Approved High School Computer Science (CS) Courses to meet IC 20-30-5-23**

- 4803 Introduction to Computer Science
- 4801 Computer Science I
- 5236 Computer Science II
- 5252 Computer Science II: Special Topics
- 5249: Computer Science III: Software Development
- 5253: Computer Science III: Cybersecurity
- 5250: Computer Science III: Databases
- 5251: Computer Science III: Informatics
- 5249: Computer Science III: Software Development
- 4570: AP Computer Science A
- 4568: AP Computer Science Principles
- 4586: IB Computer Science Standard Level
- 4584: IB Computer Science Higher Level
- 9608 Cambridge International AS and A Level Computer Science



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K-8 computer science standards were adopted by the State Board of Education in April, 2016, and were to be implemented beginning in the 2016-2017 school year. The Indiana K-8 computer science grade band standards are housed as part of the Indiana science standards, and may be assessed within the ILEARN science assessments in grades 4 and 6 in addition to the grade level science standards.

*It is important to note that the Indiana K-8 computer science standards are not intended to replace the appropriate grade level science standards, but should be taught in addition to the science standards.*

For more information regarding the K-8 computer science grade band standards, please visit <https://www.doe.in.gov/standards/science-computer-science>

In an effort to assist schools with this legislative mandate, the Indiana Department of Education is developing and identifying computer science professional development opportunities for K-12 educators. Upcoming Indiana CS professional development opportunities are located on the IDOE computer science website located [here](#).

If you have any questions, please contact Jake Koressel, IDOE Computer Science Specialist, [jkoressel@doe.in.gov](mailto:jkoressel@doe.in.gov).



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**Title:** Taking CS in Indiana to the Next Level

**Image:**



**Start Year:** 2018

**No. of Years for Commitment:** 3

**Commitment Making Organization:** Indiana Department of Education

**Population Served (Choose from list):**

- Students
- Teachers/Program Leaders
- Schools

**Number to be Served:** approximately 1.2 million students

**Brief Commitment Statement (up to 250 characters):**

Indiana Department of Education (IDOE) will train K-12 teachers in computer science and increase the number of high schools offering computer science, while recognizing districts, schools, and students who demonstrate exemplary commitment to computer science and/or achieve notable success on AP Computer Science A or AP Computer Science Principles exams.

**Detailed Description (up to 1500 characters):**

Part of Governor Eric Holcomb's Next Level 2018 agenda involved requiring "every Indiana school (K-12) to offer at least one computer science course by 2021 and offer teachers professional development in computer science." In March 2018, SEA 172 was signed into law, stating that "after June 30, 2021, each public high school, including each charter school, shall offer at least one (1) computer science course as a one (1) semester elective in the public high school's curriculum at least once each school year for high school students," and "after June 30,



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2021, each public school, including each charter school, shall include computer science in the public school's curriculum for students in kindergarten through grade 12."

In support of this mission, IDOE will offer training and provide resources on computer science for teachers at all grade-levels. These training opportunities and resources will help schools to start new computer science programs or enhance existing programs.

As of 2017, 22 percent of high schools offered at least one computer science course. IDOE will aim to increase the number of high schools that offer at least one computer science course to ensure that SEA 172 is met by 2021. One strategy to accomplish this will be to target counties where no computer science courses are offered and determine what additional supports and resources are needed to start computer science programs. This goal will also be supported via the teacher training and computer science resources delivered through the IDOE.

IDOE would also like to recognize Indiana schools/districts that are leaders in computer science education and can serve as models for other schools/districts that plan to develop their own computer science programs and initiatives. Schools eligible for recognition demonstrate one or more of the following:

- Development of a K-12 computer science implementation plan (using SCRIPT or another planning process)
- Innovative approaches standards-based computer science instruction
- Notable success on AP Computer Science A or AP Computer Science Principles exams (individual and school recognition)
- Participation in computer science-related competitions such as Intel International Science Fair, Computer Science- STEM Network competitions, American Computer Science League contests, etc.



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## **IDOE/Girls Who Code Partnership**

The Indiana Department of Education (IDOE) is partnering with **Girls Who Code** to bring free computer science opportunities to elementary, middle, and high school girls across Indiana and would love for your school/district to host a club!

**Girls Who Code Clubs** are **FREE after-school programs for third-fifth or sixth-12th grade girls** to join a sisterhood of supportive peers and role models and use computer science to change the world. Clubs are led by facilitators, who can be teachers, computer scientists, librarians, parents, or volunteers from any background or field. Many facilitators have NO technical experience and learn to code alongside their club members.

- **Sixth-12th grade clubs program:** here's an overview of the **clubs curriculum** that focuses on a Girls Who Code Project where girls work in teams to solve a real world problem they care about through code.
- **Third-fifth grade clubs program (NEW!):** the fun and engaging curriculum is a book club model where students learn from Girls Who Code's best-selling book **Learn to Code and Change the World** and participate in interactive activities that can be run completely offline with optional online activities.

To learn more about Girls Who Code programs, you can **sign up for a Girls Who Code Webinar here**.

**To start a club, you need:**

- **Space** to host the club
- **Computers and internet** for each club member in sixth-12th grade clubs. Sorry, tablets and phones are not allowed! Computers are optional for third-fifth grade clubs. Girls Who Code will provide a subset of complimentary books.
- **An adult** who will be responsible for facilitating the club through the Girls Who Code curriculum for one-two hours each week and communicating with Girls Who Code. No technical experience necessary -- just a passion for the movement!

**APPLY HERE TODAY!\***

**\*Please Note:** It is important you indicate our partnership affiliation on the Clubs Application in order to receive partnership benefits! Please list Indiana Department of Education as your partner affiliation on the fourth page titled **About Your Club** for the following question: **Is your Club affiliated with a Girls Who Code Community Partner (school districts, library systems, nonprofit organization, afterschool networks etc.)?**

Please contact **Jake Koressel**, IDOE Computer Science Specialist, if you have any questions about how to get started. Thanks for supporting our partnership with Girls Who Code!

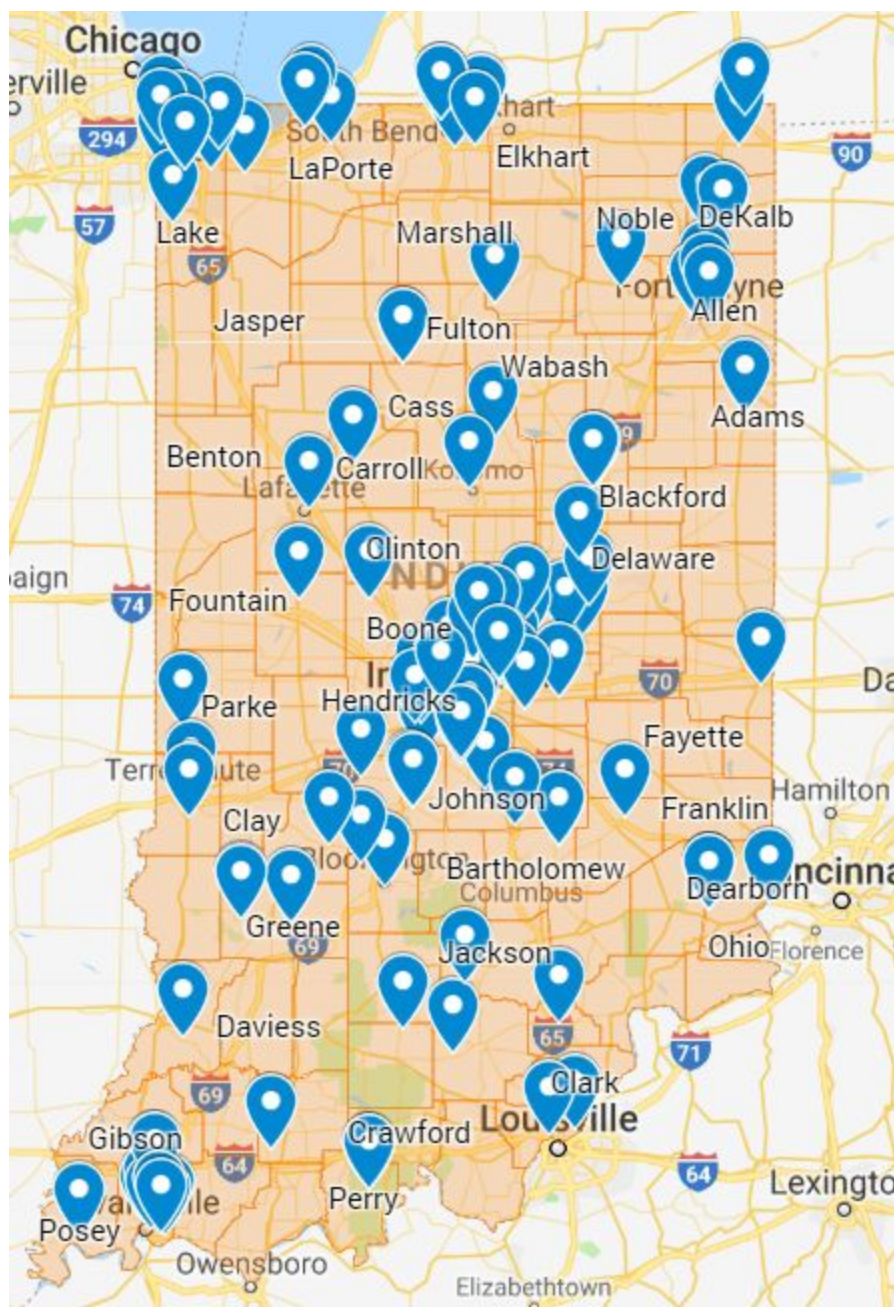


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### Girls Who Code Partnership Map







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### **List of Indiana Girls Who Code Clubs**

<b>School District</b>	<b>Club Name</b>
South Madison Community Schools	East Elementary
MSD Washington Township	Eastwood Middle School
MSD of Wayne Township	Bridgeport Elementary: Bridgeport 3-5
Penn Harris Madison	Penn High School
Mississinewa Community Schools	Northview Elementary
South Madison Community School Corporation	Pendleton Elementary
Linton-Stockton	Linton-Stockton Elementary School
Indianapolis Public Schools	Center for Inquiry 84
Delphi Community School Corporation	Delphi Community Elementary School
Portage Township Schools	South Haven Elementary
School City of Hobart	Ridge View Elementary
MSD of Mount Vernon	Mt. Vernon Jr High
Anderson Community School Corporation	Tenth Street Elementary School
Franklin Community Schools	Creekside Elementary School
MSD of Wayne Township	Maplewood Elementary School
Fort Wayne Community Schools	Forest Park Elementary: Forest Park Elementary 2019
Mooresville Consolidated Schools	Neil Armstrong Elementary
South Bend Community School Corporation	Marquette Montessori Academy
Hamilton Southeastern Schools	Hamilton Southeastern High School



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MSD Decatur Township	Stephen Decatur Elementary
School City of Hammond	Area Career Center University
North Montgomery Community School Corporation	Northridge
	Lakewood Park Christian School: Code Girls, Jr.
Garrett Keyser Butler	Garrett Middle School: Garrett Middle School Locomotives
Evansville Vanderburgh School Corporation	North Junior High School
EVSC	Cedar Hall
South Bend Community School Corporation	LaSalle Intermediate Academy
School City of East Chicago	Block Middle School: Block STEM
MSD of Wayne Township	Westlake Elementary
MSD of Lawrence Township	Sunnyside Elementary: Sunnyside Trailblazers
Metropolitan School District of Lawrence Township	Belzer Middle School
Perry Township Schools	Southport High School
West Washington	West Washington Jr Sr High
Mooreville Consolidated Schools	Neil Armstrong Elementary: NAES Spring
Alexandria Community Schools Corporation	Alexandria-Monroe High School
MSD of Wayne Township	Bridgeport Elementary
MSD of Pike Township	Pike High School
South Vermillion Community Schools	South Vermillion Middle School
Milan Community Schools	Milan Elementary





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Perry Township Schools	Perry Meridian High School
Marion	Henry W Longfellow Middle School 28
Perry Central Community Schools	Perry Central Community School: Session A
	Lakewood Park Christian School: Code Girls
Bloomfield	Bloomfield Jr-Sr High
South Bend Community School Corporation	Hamilton Traditional School
Perry Central Community Schools	Perry Central Community School: Session B
Evansville Vanderburgh School Corporation	Harrison High School: William Henry Harrison High School
MSD of Wayne Township	Bridgeport Elementary School
Indianapolis Public Schools	Step Ahead Academy
MSD of Wayne Township	Lynhurst 7th & 8th Grade Center
Milan Community Schools	Milan Middle School
Milan Community Schools	Milan Middle School
Avon Community School Corporation	Avon Middle School North
School City of Hammond	Donald E. Gavit
Orleans Community Schools	Orleans Elementary School: Orleans Coding Girls
MSD of Wayne Township	Ben Davis University High School
Linton-Stockton School Corporation	Linton-Stockton Middle School
MSD Martinsville	Martinsville High School: Artie Girl Coders
	Purdue Polytechnic high school
MSD of Wayne Township	Ben Davis High School



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Decatur County Community Schools	North Decatur Jr./Sr. High School
Tippecanoe Valley School Corp	Tippecanoe Valley High School
Whitley County Consolidated Schools	Eagle Tech Academy
MSD Martinsville	Bell Intermediate Academy
Flat Rock-Hawcreek School Corporation	Hauser Jr Sr High School: Session A
Flat Rock-Hawcreek School Corporation	Hauser Jr Sr High School: Session B
Hamilton Southeastern Schools	Durbin Elementary
Monroe County	Bloomington High School South
Lafayette School Corporation ,Indiana	Sunnyside Intermediate School
SW Dubois School Corporation	Holland Elementary
Gary School District, Gary, IN	Gary Middle College West
South Knox Middle-High School	South Knox Middle-High School Library
Gary Community School Corporation	Gary Middle School
Fort Wayne Community Schools	Northwood Middle School
MSD of Warren Township	Sunny Heights Elementary School
Evansville Vanderburgh School Corporation	Early College High School: EVSC Early College High School
Richland-Bean Blossom Community School Corporation	Edgewood Intermediate School
School Town of Munster	Wilbur Wright Middle School
LaPorte Community Schools	Crichfield Elementary School
Evansville-Vanderburgh School Corporation	Lincoln School: Digital Divas of Lincoln
MSD of Steuben County	Angola Middle School



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Lawrenceburg Community School Corporation	Central Elementary School: Central Elementary School Tigers
Vigo County School Corporation	Davis Park Elementart
Plainfield Community School Corporation	Clarks Creek Elementary
Michigan City Area Schools	Krueger Middle School
Maconaquah	Maconaquah Elementary
Michigan City Area Schools	Barker Middle School
Spencer-Owen Community Schools	Owen Valley Middle School
Evansville Vanderburgh School Corporation	Caze Elementary School
Western Boone Schools	Western Boone Elementary
Scott County School District	Eagles
School City of Hammond	Franklin Elementary
Evansville Vanderburgh School Corporation	Scott School
Hanover Community School Corporation	Hanover Central High School
Richmond Community Schools	Starr Elementary
Center Grove Community School Corporation	Center Grove High School
Evansville Vanderburgh School Corporation	Vogel Elementary School: Cardinal Coders
Evansville Vanderburgh School Corporation	Vogel Elementary School: 6th Grade Cardinal Coders
Carmel Clay Schools	Prairie Trace Elementary
MSD of Washington Township	Nora Elementary
	Corpus Christi School: Girls Who Code 2
	Corpus Christi School: Girls Who Code 1



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MSD Martinsville	Martinsville High School: Session B
Eminence Community Schools	Eminence Elementary
Fort Wayne Community Schools	Irwin Elementary: Irwin STEM
Rochester Community School Corp	Rochester Middle School: Session A
Rochester Community School Corp	Rochester Middle School: Session B
Vanderburgh	Dexter School
Medora Community Schools	Medora Community Schools
Perry Township Schools	Perry Meridian Middle School: Creativity Club
Perry Township Schools	Perry Meridian Middle School: Fab Falcons
Greenfield Central Schools	Greenfield Intermediate School
Community School Corporation of Southern Hancock County	Sugar Creek Elementary School
Adams Central Community Schools	Adams Central Elementary
Fort Wayne Community Schools	Study Elementary
Fort Wayne Community Schools	Study Elementary School
Kokomo Center School Corporation	Wallace Integrated Arts
Mississinewa	Mississinewa High School
Greater Clark County Schools	Riverside Elementary School
Fremont Middle School	Fremont Middle School
Center Grove Community Schools	Center Grove Middle School Central
Carmel Clay Schools	Carmel High School
Fort Wayne Community Schools	Forest Park Elementary



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Fort Wayne Community Schools	Irwin Elementary
Vigo County School Corporation	Honey Creek Middle School
Edinburgh	East Side Elementary Library
Plainfield School Corporation	Van Buren Elementary: Van Buren Elementary Plainfield
Floyd County	New Albany High School
MSD of Wayne Township	Chapel Hill 7th & 8th Grade Center
Lake Ridge	Lake Ridge New Tech
School City of East Chicago	Block Middle School
MSD of Lawrence Township	Indian Creek Elementary
School City of Hammond, IN	Lincoln Elementary School: Abraham Lincoln Elementary School (Hammond)
Lake Ridge	Calumet New Tech
Penn Harris Madison	Elm Road



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## Computer Science Champs

Are you new to teaching computer science, the only computer science teacher in your building (or district), or just wish you had some people to go to when you have questions about computer science teaching and learning? Luckily, Indiana has some AMAZING, experienced computer science educators that are here to help! Below you will find a list of accomplished Indiana CS teachers who are happy to connect with you! These CS Champs are from various parts of the state and serve a variety of grade-levels. Check it out! Feel free to reach out to any of them if you would like to ask questions or seek advice.

Julie Alano - Hamilton Southeastern High School

Computer Science Teacher

[jalano@hse.k12.in.us](mailto:jalano@hse.k12.in.us)

Mrs. Julie Alano began teaching at Hamilton Southeastern (HSE) High School in Fishers, Indiana in 1998. She has seen many changes in the school and community, including in her classrooms and courses. She has taught Algebra II and other math courses but now focuses on computer science. She teaches AP Computer Science A, AP Computer Science Principles, and Computer Science I and has also taught Intro to Computer Science. This year she added courses in Cybersecurity and App Development. Mrs. Alano started the CybeRoyals student-led tech squad at the school and sponsors the computer club. As founder and president of the Hoosier Heartland Chapter of the Computer Science Teachers Association, she works to promote and support K-12 computer science education across the state. In 2015-2016, she worked as a writer for the national Framework for K-12 Computer Science Education. She has also served on standards writing committees at the state level in Indiana. Julie became a code.org Computer Science Principles Facilitator in the fall of 2016, the first year the course was offered as AP. Mrs. Alano was named Teacher of the Year for HSE High School and HSE Schools (a district of over 21,000 students) in May 2016. In April of 2017, she was named State Tech Educator of the Year by the TechPoint Foundation in Indiana. Julie is also the head girls track coach at HSE High School and is currently president of the Indiana Association of Track and Cross Country Coaches, after serving 11 years as secretary, and 2 years as vice president. In her spare time, she helps at her family's farm and orchard near Shelbyville, Indiana and can be found selling fresh produce at a local farmers' market on Saturdays.





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Ryan Bean - Sense Charter School

K-8 Computer Science Teacher

[rbean@senseindy.org](mailto:rbean@senseindy.org)

Ryan Bean teaches technology and computer science at Sense Charter School and works as the school IT guy, Google admin, and technology coordinator. He graduated in 2013 from Indiana University and worked for several years in special education, RTI, Kindergarten, and 2nd, 4th, and 5th grades. Ryan has always had a passion for technology and openly labels himself as a mega nerd, so he decided his rightful place was in technology education. He then moved on to teaching technology in Carmel before being hired at Sense Charter School. Ryan teaches a large range of topics including Google Apps, computer science, and digital citizenship, and utilizes productivity tools, Code.org, Lego EV3, VEX, Clever, and many other systems to coordinate the school's technology and effectively teach CS.



Dana Calfee - Greensburg Jr. High School

Science and Computer Science Teacher

[dcalfee@greensburg.k12.in.us](mailto:dcalfee@greensburg.k12.in.us)

Dana Calfee has always been very curious and creative. Her 8th grade science project on the adhesive characteristics of clear tape along with her experiences at Indiana University in Bloomington prepared her well for teaching science the last 14 years. In the last 2 years, Dana has become an advocate for integrating Computer Science in the science curriculum in order to improve engagement and literacy in both subject areas. She is a [code.org](https://code.org) Computer Science Discoveries facilitator and has a leadership role in the Hoosier Heartland Chapter of CSTA. As a co-creator of the STEMConnects Lab, Dana brings real world applications of physical computing, coding, computational and design thinking to life for 6th-8th graders as she continues to "Think Opportunity" at Greensburg Community Jr. High School. As an educational presenter, Dana loves to promote the importance of UDL and mindfulness in designing learning experiences and work spaces for kids. As a UDL practitioner and PBIS coach for her school, she is driven to help others scaffold best practices that grow and emotionally support expert learners. Outside of school, Dana teaches drama classes for children through the Columbus Parks & Rec program and tries to spend as much time as possible in her kayak on the tri-state waterways. Teaching is a life love inspired by her own children,







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Rebecca, Jonah, and Lucy and her dad, Larry - a former junior high teacher and coach- who inspires her daily to continue finding ways to remove obstacles for kids to experience the transformative power of computer science and science literacy in their own lives.

Patty Cushing - Hammond Area Career Center

Computer Science Teacher

[pacushing@hammond.k12.in.us](mailto:pacushing@hammond.k12.in.us)

Patty Cushing is a certified Computer Science teacher at the Area Career Center University in Hammond, Indiana and an Adjunct Faculty member at Loyola University Chicago. She holds a B.S. in Psychology and an M.Ed. in Educational Technology, both from Loyola University Chicago. Early in her professional career Patty spent 20+ years working in the Corporate sector where she focused on teaching and training within the digital space. After realizing that Education is the primary means of changing lives and society for the better, she made a mid-career change to Education, where she now focuses on Computer Science and educating tomorrow's leaders. Patty has a particular interest in assisting underserved populations, especially youth. She has spent much of her career advocating for underrepresented groups and working to increase the number of students – particularly women and ethnic minorities – in Computer Science. In addition to the CS courses she teaches, Patty facilitates one of the few Girls Who Code clubs in her school district.



Kristen Haubold - Riley High School

Computer Science Teacher

[khaubold@sbcsc.k12.in.us](mailto:khaubold@sbcsc.k12.in.us)

Kristen Haubold has taught Computer Science for 4 years at Riley High School. She has taught AP Computer Science Principles, AP Computer Science A, and Cybersecurity. Kristen is a proud alumnus of Indiana University Bloomington. She currently resides in South Bend Indiana, where she also works as the Director of Curriculum and Instruction at South Bend Code School.







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Brandy Hicks - Milan Community Schools

Computer Science Teacher

[brandy.hicks@milan.k12.in.us](mailto:brandy.hicks@milan.k12.in.us)

In my professional journey, I have served the educational community as an elementary, middle, and high school teacher in urban and rural school districts. I had the opportunity to begin my teaching career with lower economic third graders at Jesse Sherwood Elementary School in Chicago's south side. Working with these children presented me with many different kinds of challenges that allowed me to grow as an educator. I am very grateful for having had that experience. It allowed me to appreciate all the opportunities that one has in this country to achieve, no matter where one comes from or the income status. Education is the equalizer that allows every person to reach their full potential. This ideal, which became my mission in the classroom from those early experiences, has been my beacon with every class I have taught since those first years. After leaving Chicago, I moved to Indianapolis and found a teaching position with MSD of Pike Township at Guion Creek Elementary as a fifth-grade teacher. Currently, I am a technology coach and technology teacher at a rural school in Milan, Indiana. While at Milan Community School Corporation, I have taught math and computer science classes in both middle and high school. I am an educational presenter and have led my district in the roll-out of Google Apps for Education and Chromebooks. I have a Bachelor of Science in Education, Masters of Technology in the Classroom, and a Computer Education License.



Genevieve Petty - Cold Spring School

Computer Science Teacher

[pettyg@myips.org](mailto:pettyg@myips.org)

Genevieve McLeish-Petty began teaching for Indianapolis Public Schools in 2000. She spent many years teaching secondary ELA courses of all kinds and levels. During that time, she was a Teacher of the Year, District Top Ten Teacher and Hubbard Finalist. Her real joys at the high school were in her Digital Editing and Mass Media classes and the stage. Her love of technology lead her to her Master's Degree and eventually to a large shift in educational focus. In 2018, she changed her license and went to teach at Cold Spring Elementary (an IPS Innovation School) where she is the Computer Science teacher for K-6. Cold Spring is an Indiana STEM Certified School. Genevieve also serves as the building's Technology Director and spends a large part of her energy working with teachers on STEM and tech integration. Genevieve and her husband of 25 years (also a teacher at Cold Spring) coach the Cold Spring World Qualifying VEX





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Robotic Teams and facilitate their Junior Robotics Teams and Program (Wonder Workshop/Dash). She is comfortable with and uses a wide variety of technology apps and resources. Genevieve is PLTW Trained in Launch and Gateway App Creators. She is currently becoming an Indiana Ford NGL Project Based Learning Trainer.

Justin Rentschler - DeKalb Central Schools  
Innovation Coach and District Computer Science Coordinator  
[jrentschler@dekalbcentral.net](mailto:jrentschler@dekalbcentral.net)

Justin is an Innovation Coach for DeKalb County Central United School District in Waterloo, IN. Through this role, he helps lead the district in the implementation of innovative teaching and learning practices through the use of technology and research-based instructional strategies at the elementary and secondary levels. Justin also is the District Computer Science Coordinator where he serves to align computer science practices, resources, and standards K-12. He graduated from Indiana University Fort Wayne with a Bachelor of Science in Secondary Education and a Masters of Science in Educational Leadership. Previously, Justin spent his time teaching a wide variety of subjects at DeKalb Middle School including computer science, digital communications, math, writing, and a project-based learning science and technology course. He also started the student-led tech team, Baron Tech, and a robotics club at the middle school.



Phil Sands - Purdue University  
K-12 Outreach Coordinator for Computer Science  
[psands@purdue.edu](mailto:psands@purdue.edu)

Phil serves as the K-12 Outreach Coordinator for the Department of Computer Science at Purdue University. In this role, he works with teachers to help improve their practice, students in order to engage them with computing ideas, and community members to help them understand the important role computer science will play in our rapidly changing world. In addition, Phil is a doctoral student in Educational Psychology and Educational Technology at Michigan State University. His research focuses on the impact of self-regulation in the computer science classroom, issues relating to teacher pedagogical knowledge in computer science, and the use of online learning environments to broaden participation in computing. Previously, Phil worked as a K-12 statistics and computer science teacher in Michigan and Maryland, and also as a software engineer.





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Maria Sellers - South Vermillion Middle School

Computer Science Teacher

[msellers@svcs.k12.in.us](mailto:msellers@svcs.k12.in.us)

Maria Sellers began teaching at South Vermillion Community Schools in Clinton, Indiana in 2003. She started her career as an elementary music teacher and continued in this role for 11 years. She then served as an eLearning Specialist, a high school digital student leadership teacher, and building technology assistant for four years. Her role changed once again in 2017, as she began teaching GAIN (Going Above Instructional Needs) as a required course for all students at South Vermillion Middle School. Her course exposes students to computer science, digital citizenship, STEM, business, and college and career prep. She still serves as a building technology assistant but now uses the role to mentor a Girls Who Code club and Wildcats Tech Crew club. Maria currently serves as a Computer Science Fundamentals Facilitator for Code.org in partnership with Nextech in Indiana. She also presents at numerous EDTech, edCAMP, and eLearning conferences in multiple states. Maria has a Bachelor of Music in Music Performance and a Master of Music in Education from Indiana State University. Currently, she is licensed in Music Education (All Areas K-12) and Computer Science Education (K-12).



Kerry Sensenbrenner - Thompkins Middle School

6th Grade Teacher

[kerry.sensenbrenner@evsck12.com](mailto:kerry.sensenbrenner@evsck12.com)

Kerry is a certified life science and computer science teacher at Thompkins Middle School in Evansville, IN. She currently teaches 6th Grade Science and has helped her district integrate Computer Science into the middle school curriculum maps. Kerry received her B.S. (2006) in Secondary Math/Science Teaching from The Florida State University. In addition to teaching, Kerry is a Nextech facilitator of the Code.org course - Computer Science Discoveries, a member of the 2019-20 Teach Plus Indiana Policy Fellowship, and was selected by the U.S. Department of Education as a Computer Science subject matter grant reviewer in the Education Innovation and Research Program. This summer Kerry attended Picademy in Mountain View, California, and is excited to bring more physical computing opportunities into her classroom. Kerry is married and has a daughter and a son.





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Justin Smith - Pike High School  
Computer Science Teacher  
[jrsmith@pike.k12.in.us](mailto:jrsmith@pike.k12.in.us)

Justin is a Computer Science teacher at Pike High School in Indianapolis. He serves on his district's Technology Integration Committee. He received his Bachelor of Arts in Finance from Ball State University and his Master of Arts in Teaching from the University of Indianapolis. Justin worked in hotel and retail management after receiving his Bachelor's degree and made the jump to education after realizing that helping and training people were his favorite parts of management. Justin currently teaches Computer Science I, Computer Science II, and Computer Science III: Cybersecurity.



Katy Sparks - Monroe County Community School Corporation  
Elementary STEM and Computer Science Coach  
[kesparks@mccsc.edu](mailto:kesparks@mccsc.edu)

Katy Sparks is the STEM and Computer Science Coach for the Monroe County Community Schools Corporation in Bloomington, Indiana. She works with teachers at 14 elementary schools to integrate STEM and computer science standards into the school day. Before starting this position, Katy taught third grade for eight years, including seven years at Grandview Elementary School, a STEM certified school. She is also a member of the Indiana STEM Council and STEM Cadre.







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To: Superintendents, Principals, CTE Directors

From: Jake Koressel, Computer Science Specialist  
Amanda McCammon, Chief of Workforce and STEM Alliances

Date: August 3, 2018

Subject: IC 20-30-5-23 - Computer Science Education

#### Background - IC 20-30-5-23

- a) After June 30, 2021, each public high school, including each charter school, shall offer at least one (1) computer science course as a one (1) semester elective in the public high school's curriculum at least once each school year for high school students.
- b) After June 30, 2021, each public school, including each charter school, shall include computer science in the public school's curriculum for students in kindergarten through grade 12.

#### Guidance

The following are guidance items in support of section (a):

#### Computer Science Courses

A complete list of high school courses that satisfy the requirements of SEA 172, as well as high school course standards, can be found [here](#). Detailed course descriptions can be found [here](#).

#### Advanced Placement (AP) and CTE

There are currently two AP course offerings in computer science: AP Computer Science Principles and AP Computer Science A. Specific information about these courses can be found [here](#). Additionally, a variety of computer science courses qualify for CTE state funding. More information on computer science courses that qualify for CTE state funding can be found [here](#).

#### Teacher Licensure

Although computer science courses must be taught by an appropriately licensed teacher, licensure requirements vary by course and grade-level. Details can be found in the [Indiana Assignment Code](#). Various licensing options are available including: [computer education license addition](#), [career specialist license](#), and [workplace specialist license](#).



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The following are guidance items in support of section (b):

### Computer Science Standards

Computer science standards for grade bands K-2, 3-5, and 6-8 were adopted by the State Board of Education in 2016. Please visit <https://www.doe.in.gov/wf-stem/computer-science> for more information regarding Indiana computer science standards.

### Assessment

The Indiana K-8 computer science standards are housed as part of the Indiana science standards, and will be assessed on grades 4 and 6 ILEARN science assessments beginning in the 2018-2019 school year. For assessment blueprints, please visit <https://www.doe.in.gov/assessment/ilearn-test-design>. Click [here](#) to view item specifications.

*It is important to note that the Indiana K-8 computer science standards are not intended to replace the appropriate grade level science standards, but should be taught in addition to the science standards.*

Guidance in support of sections (a) and (b):

### Professional Development

A variety of computer science professional development opportunities are available to Indiana Educators for all grade levels. For a list of these opportunities, please visit <https://www.doe.in.gov/wf-stem/cspd>. This list is continuously updated as new opportunities become available.

If you have any questions, please contact Jake Koressel, IDOE Computer Science Specialist, [jkoressel@doe.in.gov](mailto:jkoressel@doe.in.gov).


[www.nextech.org](http://www.nextech.org)

# One-Day Middle School Standards Workshop

## Workshop Schedule

8:30am - 4:00pm

General/Logistics (Grey)   CS Concepts (Green)   IN DOE (Yellow)   Demo Lessons (Purple)   Code.org Specific (Teal)

Time	Duration	Session Name	Session Overview
8:30 - 9:00	30 min	Registration & Breakfast	Help participants sign in and share where food is
9:00 - 9:05	5 min	Attendance Troubleshooting	Ensure all attendees show up on the attendance for the workshop
9:05 - 9:15	10 min	Agenda and Intros	Share agenda and learn about everyone in the room
9:15 - 9:30	15 min	Making a Monster!	Practice using the CS problem solving process and learning about abstraction
9:30 - 9:50	20 min	Welcome to CS	Overview of the two days and why computer science is important.
9:50 - 10:10	15 min	Introduction to IN CS Standards	Show standards, where to find them, briefly describe them, show blueprints, K-8 Curriculum Development Indiana Standards Map
10:10 - 10:25	15 min	BREAK	
10:25 - 10:35	10 min	Core Concept #1: Computing Devices and Systems (CD)	Begin to understand content for core concept #1
10:35 - 10:55	20 min	Model Lesson #1	Experience a lesson about IN CS Standards Core Concept #1: Computing Devices and Systems (CD)
10:55 - 11:05	10 min	Core Concepts #2 & #3: Impact and Culture (IC) & Data and Information (DI)	Begin to understand content for core concepts #2 and #3
11:05 - 11:25	20 min	Model Lesson #2	Experience a lesson about IN CS Standards Core Concepts #2 & #3: Impact and Culture (IC) & Data and Information (DI)
11:25 - 11:40	15 min	Core Concepts #4 & #5: Programs and Algorithms (PA) & Networking and Communication (NC)	Begin to understand content for core concepts #4 & #5
11:40 - 12:00	20 min	Model Lesson #3	Experience a lesson about IN CS Standards Core Concepts #4 & #5: Programs and Algorithms (PA) & Networking and Communication (NC)


[www.nextech.org](http://www.nextech.org)

12:00 - 12:30	30 min	LUNCH	
12:30 - 1:30	60 min	Concept Check	How are teachers feeling about each of the Core Concepts reviewed in the morning?
1:30 - 2:00	30 min	Introduction to the Code.org Website	Navigating Teacher Features
2:00 - 2:15	15 min	BREAK	
2:15 - 3:00	45 min	Implementing a Plan for your classroom	Create a plan for how you will be implementing CS in your classroom
3:00 - 3:30	30 min	Sharing your plan	Share your plan
3:30 - 3:45	15 min	Revising your Implementation Plan	Revise your implementation plan
3:45 - 4:00	15 min	Wrapping up	Wrap up the day, thank people for coming, and have everyone take the survey.





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## Updated Computer Science Assignment Codes

The table below outlines the recently-updated Indiana Assignment Codes for Computer Science courses. These were updated to give schools additional flexibility in their implementation of computer science and identifying those who will teach computer science. Updates are highlighted in yellow.

Assignment Codes					
Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
4570	AP Computer Science A	<ul style="list-style-type: none"> <li>• Business Education 7-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business Education 9-12</li> <li>• Business Education with Vocational Endorsement 9-12</li> <li>• Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business with high school setting</li> <li>• Computer Education with high school setting</li> <li>• CTE: Business Services &amp; Technology with high school setting</li> <li>• Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Computer Education 5-12, P-12</li> <li>• Business 5-12</li> <li>• CTE: Business Services &amp; Technology 5-12</li> <li>• CTE: Business &amp; Information Technology 5-12</li> <li>• Workplace Specialist: Computer Science 9-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>
4568	AP Computer Science Principles	<ul style="list-style-type: none"> <li>• Business Education 7-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business Education 9-12</li> <li>• Business Education with Vocational Endorsement 9-12</li> <li>• Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business with high school setting</li> <li>• Computer Education with high school setting</li> <li>• CTE: Business Services &amp; Technology with high school setting</li> <li>• Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Computer Education 5-12, P-12</li> <li>• Business 5-12</li> <li>• CTE: Business Services &amp; Technology 5-12</li> <li>• CTE: Business &amp; Information Technology 5-12</li> <li>• Workplace Specialist: Computer Science 9-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>
4584	IB Computer Science, Higher Level	<ul style="list-style-type: none"> <li>• Business Education 7-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business Education 9-12</li> <li>• Business Education with Vocational Endorsement 9-12</li> <li>• Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business with high school setting</li> <li>• Computer Education with high school setting</li> <li>• CTE: Business Services &amp; Technology with high school setting</li> <li>• Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Computer Education 5-12, P-12</li> <li>• Business 5-12</li> <li>• CTE: Business Services &amp; Technology 5-12</li> <li>• CTE: Business &amp; Information Technology 5-12</li> <li>• Workplace Specialist: Computer Science 9-12</li> <li>• Math or Science with Professional Development or additional training in Computer Science</li> </ul>



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Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
4586	IB Computer Science, Standard Level	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Math or Science with Professional Development or additional training</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>
9608	Cambridge International AS & A Level Computer Science	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>
4803	Introduction to Computer Science	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Occupational Specialist in "Computer Science" related course approved for a CTE pathway</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Workplace Specialist in "Computer Science" related course approved for a CTE pathway</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist in related "Computer Science" course approved for a CTE pathway</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>



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Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
4801	Computer Science I	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>
5236	Computer Science II	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Programming 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>
5252	Computer Science III: Special Topics	Must have an approved Non-Standard Course Waiver to use this course. Licensing is determined during the waiver process.			
5253	Computer Science III: Cybersecurity	<ul style="list-style-type: none"> <li>Business Education 7-12</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming and Software Development 9-12</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Information Support &amp; Services</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Cybersecurity 9-12</li> </ul>



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Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
5250	Computer Science III: Databases	<ul style="list-style-type: none"> <li>Business Education 7- 12</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development &amp; Network Systems</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business and Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Networking 9-12</li> <li>Workplace Specialist: Info and Technology: Program &amp; Software Development 9-12</li> </ul>
5251	Computer Science III: Informatics	<ul style="list-style-type: none"> <li>Business Education 7- 12</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Computer Operations &amp; Programming: Management Info Systems</li> <li>Workplace Specialist: Information Technology: Information Support &amp; Services</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business and Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Information Technology: Information Support &amp; Services 9-12</li> </ul>
5249	Computer Science III: Software Development	<ul style="list-style-type: none"> <li>Business Education 7- 12</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business and Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Info Technology: Programming &amp; Software Development 9-12</li> <li>Workplace Specialist: Programming 9-12</li> </ul>

## AMENDMENT #1

This is an Amendment to the Contract (the "Contract") identified as Contract #00000000000000000000000026238 entered into by and between the Indiana Department of Education (the "State") and NEXTECH.ORG INC. (the "Contractor") approved by the last State signatory on May 10, 2018.

In consideration of the mutual undertakings and covenants hereinafter set forth, the parties agree as follows:

No additional time is being added to the Contract. It shall terminate on **July 01, 2019**.

The consideration during this extension period is **\$600,000**. Total remuneration under the Contract is not to exceed **\$670,000**.

The Contract is amended by the following:

### 1. Duties of Contractor.

Paragraph 1. relating to Duties of Contractor, is hereby modified by addition of the following:

The Contractor will perform duties set forth in **Exhibit A** of the original contract and **Exhibit B** attached and fully incorporated by reference.

### 2. Consideration.

Paragraph 2. relating to Consideration, is hereby deleted in its entirety and replaced with the following:

The Contractor will be paid at the rates indicated in **Exhibit A** of the original contract and **Exhibit B** attached and fully incorporated by reference for performing the duties of this Contract. Total remuneration under this Contract shall not exceed **\$670,000**.

### 36. Payments.

Paragraph 36. relating to Payments, Item "E" is being added as follows:

E. Payments shall not exceed \$670,000 for the period of June 1, 2018 through July 1, 2019.

### Funding Summary

June 1, 2018 through July 1, 2019 (Original Contract)	\$ 70,000
June 1, 2018 through July 1, 2019 (Amendment #1)	<u>\$600,000</u>

Total remuneration under this Contract shall not exceed \$670,000.

### 33. Notice to Parties.

Paragraph 33. Relating to Notice of Parties, is hereby modified as follows:

Notices to the State shall be sent to:

Amanda Mccammon, Chief of Workforce & STEM Alliances  
Indiana Department of Education

115 W. Washington Street  
South Tower, Suite 600  
Indianapolis, IN 46204

**50. State Boilerplate Affirmation Clause.**

Paragraph 50. Relating to State Boilerplate Affirmation Clause, is hereby modified by addition of the following:

- 33. Notice to Parties.** (Modified)
- 36. Payments.** (Item "E" is added)

**All matters set forth in the original Contract and not affected by this Amendment shall remain in full force and effect.**

### Non-Collusion and Acceptance

The undersigned attests, subject to the penalties for perjury, that the undersigned is the Contractor, or that the undersigned is the properly authorized representative, agent, member or officer of the Contractor. Further, to the undersigned's knowledge, neither the undersigned nor any other member, employee, representative, agent or officer of the Contractor, directly or indirectly, has entered into or been offered any sum of money or other consideration for the execution of this Amendment other than that which appears upon the face hereof. **Furthermore, if the undersigned has knowledge that a state officer, employee, or special state appointee, as those terms are defined in IC § 4-2-6-1, has a financial interest in the Contract, the Contractor attests to compliance with the disclosure requirements in IC § 4-2-6-10.5.**

### Agreement to Use Electronic Signatures

I agree, and it is my intent, to sign this Contract by accessing State of Indiana Supplier Portal using the secure password assigned to me and by electronically submitting this Contract to the State of Indiana. I understand that my signing and submitting this Contract in this fashion is the legal equivalent of having placed my handwritten signature on the submitted Contract and this affirmation. I understand and agree that by electronically signing and submitting this Contract in this fashion I am affirming to the truth of the information contained therein. I understand that this Contract will not become binding on the State until it has been approved by the Department of Administration, the State Budget Agency, and the Office of the Attorney General, which approvals will be posted on the Active Contracts Database:

[https://hr85.gmis.in.gov/psp/pa91prd/EMPLOYEE/EMPL/h/?tab=PAPP\\_GUEST](https://hr85.gmis.in.gov/psp/pa91prd/EMPLOYEE/EMPL/h/?tab=PAPP_GUEST)

**In Witness Whereof**, Contractor and the State have, through their duly authorized representatives, entered into this Amendment. The parties, having read and understood the foregoing terms of this Amendment, do by their respective signatures dated below agree to the terms thereof.

NEXTECH.ORG INC.

Indiana Department of Education

By: *Karen Jung*

By: *Tracy Brown for Dr. Jennifer McCormick*

Title: *President*

Title: *Chief Financial Officer*

Date: *9/12/18*

Date: September 12, 2018

Electronically Approved by: Department of Administration  By: _____ (for) Lesley A. Crane, Commissioner <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>	
Electronically Approved by: State Budget Agency  By: _____ (for) Jason D. Dudich, Director <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>	Electronically Approved as to Form and Legality: Office of the Attorney General  By: _____ (for) Curtis T. Hill, Jr., Attorney General <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>

## Exhibit B

During the summer of 2018 as part of the Pathfinders Summer Institute, Nextech organized week-long, intensive professional development experiences in Computer Science Discoveries (CSD) and Computer Science Principles (CSP). CSP had two cohorts and each cohort required two facilitators. CSD also had two cohorts and each cohort required two facilitators. As part of the CSP and CSD cohorts, Nextech will provide two Saturday workshops each quarter during the school year to serve as embedded professional development for cohort participants. Participants will attend one Saturday workshop each quarter. Two facilitators per workshop are required. Each CSP cohort member will be provided with one CSP curriculum guide, one CSP lesson planning packet, one College Board AP CSP Course and Exam Description, and Code.org posters. Each CSD cohort member will be provided with one deck of cards, one CSD curriculum guide, one CSD lesson planning packet, and Code.org posters. CSP cohorts will impact a total of 44 public school teachers, while CSD cohorts will impact a total of 60 public school teachers. Eight total workshop days are expected to be devoted to CSP and CSD across the school year.

Nextech will also organize and promote Computer Science Fundamentals workshops for a minimum of 300 public school teachers (beyond the 220 trained during the summer of 2018) by June 30, 2019. The guidelines for CSF workshops are as follows:

- A minimum of 12 participants is required to conduct a workshop.
- Workshops with less than or equal to 15 participants will only receive reimbursement for one facilitator.
- Each workshop participant will receive one CSF curriculum guide.
- Sub reimbursements will be provided to public school districts that send teachers to workshops that take place during school hours.

A middle school computer science workshop is currently in development and will be offered 10 times by June 30, 2019. The goals of the workshop include preparing middle school teachers to integrate computer science into their curriculum, as well as to meet minimum assessment requirements. The guidelines for middle school workshops are as follows:

- A minimum of 12 participants is required to conduct a workshop.
- Workshops with less than or equal to 15 participants will only receive reimbursement for one facilitator.
- Materials provided to workshop participants will be determined upon the conclusion of workshop development.
- Sub reimbursements will be provided to public school districts that send teachers to workshops that take place during school hours.

Nextech will organize and offer a minimum of 4 SCRIPT workshops by June 30, 2019. The guidelines for SCRIPT workshops are as follows:

- A minimum of 12 participants (four district teams of three) is required to conduct a workshop.



- Workshops will be led by one paid facilitator and one Nextech staff member.
- Three of the workshops should cater to the three regions where ESC leadership did not attend the SCRIPT facilitator workshop in July 2018 (Wilson Education Center, Wabash Valley Education Center, and Northwest Indiana Education Center). The fourth workshop should be offered in the Indianapolis area.
- Additional workshops may be added on an as-needed basis as mutually determined by IDOE and Nextech.

There is flexibility in the number of participants and the format of SCRIPT workshops, however, workshops should effectively meet the needs of participating districts and be deemed fiscally responsible by IDOE. IDOE prefers a minimum of five district teams be present at each SCRIPT workshop.

For all workshops, priority should be given to teachers of public schools and public charters, as well as teachers at schools with no existing computer science programs. Marketing strategies should be developed in consultation with appropriate Indiana Department of Education staff and should include broad advertisement at least one month prior to each event. Following the registration period, targeted, strategic reminders and informational updates should be sent to participants and school districts. Facilitators are compensated \$500 per day for all workshops. All workshops should be completed by June 30, 2019, and Nextech staffing costs for these workshops should not exceed \$125,397.64 (an updated proposal can be submitted and will be considered by IDOE) based on the following allocations (detailed responsibilities included):

- Fully Allocated Program Manager
  - Identify and onboard partner schools, districts, and other organizations
  - Design and deliver all professional development workshops for elementary, middle and high school teachers
  - Serve as primary contact for all teachers that have / are participating in Nextech's K-12 professional development programs
  - Create a teacher community that persists beyond professional development experiences
  - Manage contracted content facilitators
  - Facilitate workshops to educate middle and high school guidance counselors / administrators on postsecondary pathways in technology
  - Summarize and report teacher proficiency and student mastery of academic content
  - Maintain relationships with key stakeholders in the advancement of K-12 Computer Science in Indiana
  - Lead processes to identify new curriculum and professional providers that will significantly grow our portfolio of classroom solutions for K-12 CS educators
  - Other project-related responsibilities as determined by IDOE in collaboration with the provider
- 40-50% Allocated Marketing Associate

- Craft and execute content marketing strategy to recruit participants in professional development programs
- 15% Allocated Operations Associate
  - Coordinate details for professional development workshops
  - Process all paperwork regarding stipend payments
  - Serve as onsite staff for select workshops
- 15% Allocated President
  - Assist in the recruitment of curriculum partners and implementation resources
  - Maintain executive level relationship with curriculum providers and funding partners
  - Execute all development activities to raise funds to support professional development activities
  - Monitor and report on financial activity specific to professional development activities

On a monthly basis, Nextech staff members with at least 40% allocation to the activities listed above will meet with the Computer Science Specialist at the Indiana Department of Education. These meetings will be scheduled by the Computer Science Specialist and should include updates from Nextech on the number of teachers trained, upcoming events and accompanying training projections, detailed expense summaries, applicable invoices for the prior month, as well as any other items as deemed necessary by the Indiana Department of Education or Nextech. Additionally, Nextech should submit an updated budget forecast to IDOE six months after the start of the contract and every six months thereafter, as long as Nextech is under contract with IDOE.

## Budget

Original Contract Amount \$70,000  
 Amended Contract Amount \$600,000

## Original Contract \$70,000

Completed	Description	# of Workshops	Total Participants (Public only)	Cost/Participant	Total Cost
Computer Science Fundamentals (ES)	Two-day workshop targeting elementary (K-5) teachers - Summer 2018	14	220	\$124.22	\$27,328.40
SCRIPT TTT @ PF Summit	For ESC's and IDOE	1	15	\$15,000.00	\$15,000.00
Future					
Remaining CSF (22 total)	Two-day workshop targeting elementary (K-5) teachers - Summer 2018	8	160	\$124.22	\$19,875.20
SCRIPT Training	Two-day CS strategic planning workshop for districts not offering CS (based on 6 district teams per workshop, 3 members per team). Should be offered in early fall.	1	18	\$124.22	\$2,235.96
Program Management/Marketing	Program Manager 100% Marketing 50% Operations Associate 15% President 15%				\$5,560.44
<b>Total</b>					<b>\$70,000.00</b>

## Amended Contract \$600,000

Future Workshops	Description	# of Cohorts	Participants/Cohorts	Cost/Participant	Total Cost
Computer Science Principles (HS)	Pathfinders Summit fees, followed by (4) quarterly, Saturday workshops during the school year to finish their 9 days of CSD or CSP training. Includes teacher stipends.	2	22	\$2,911.00	\$128,084.00
Computer Science Discoveries (MS)		2	30	\$2,911.00	\$174,660.00
		# of Workshops	Participants/Workshop	Cost/Participant	Total Cost
Computer Science Fundamentals (ES)	Two-day workshop targeting elementary (K-5) teachers. Budget based on 30 participants/workshop. Minimum of 12 participants/workshop and only one facilitator if less than or equal to 15 participants. To be offered by June 30, 2019.	5	30	\$124.22	\$18,633.00
CSF Sub Reimbursement	\$86.91/day	13	30	\$173.82	\$67,789.80
Computer Science Fundamentals (ES)	Two-day workshop targeting elementary (K-5) teachers. Budget based on 30 participants/workshop. Minimum of 12 participants/workshop and only one facilitator if less than or equal to 15 participants. To be offered by June 30, 2019.	2	30	\$124.22	\$7,453.20
Middle School 2-Day Development	Development of MS workshop by Nextech staff and/or contracted individuals.	N/a	N/a	N/a	\$7,939.88
Middle School 2-Day	Two-day workshop targeting middle school (6-8) teachers to meet minimum assessment standards. Minimum of 12 participants/workshop and only one facilitator if less than or equal to 15 participants. To be offered by June 30, 2019.	10	20	\$124.22	\$24,844.00
MS 2-Day Sub Reimbursement	\$86.91/day	10	20	\$173.82	\$34,764.00

SCRIPT Training	One- or two-day CS strategic planning workshop for districts not offering CS (based on 6 district teams per workshop, 3 members per team). Minimum of 15 participants per workshop. To be offered by June 30, 2019.	4	21	\$124.22	\$10,434.48
<b>Total</b>					<b>\$474,602.36</b>
<b>Program Management and Marketing Budget</b>					<b>\$125,397.64</b>
<b>Grand Total</b>					<b>\$600,000.00</b>

**Details for Amendment:**

Reporting Requirements - Nextech will report the following to IDOE by the 10th of each month:

Updated training numbers

Detailed expense summary

Details on Nextech contributions

Other pertinent information

Other items identified by IDOE

Required monthly meetings

**Other Information:**

All workshops are to be completed by June 30, 2019.

Priority should be given to teachers of public schools and public charters as well as teachers at schools with no existing computer science programs.

Staffing allocations not to exceed \$125,397.64

Updated budget forecast should be submitted to IDOE six months after the start of the contract and every six months thereafter, as long as Nextech is under contract with IDOE

**Marketing & Promotion:**

Events should be broadly advertised at least one month prior to the event date

Reach out to schools/districts three weeks prior via email to inform about event

**Facilitators:**

2 per workshop

Paid \$500/day

**Materials Provided to Participants:**

CSP - One CSP curriculum guide, one CSP lesson planning packet, one College Board AP CSP Course and Exam Description, and Code.org posters

CSD - One deck of cards, one CSD curriculum guide, one CSD lesson planning packet, and Code.org posters

CSF - One curriculum guide

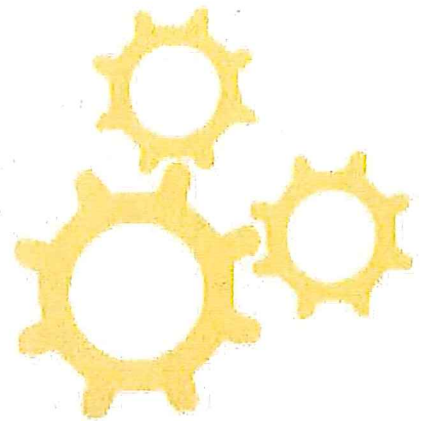
Middle School 2 Day - One curriculum guide



## **STEM Six-Year Strategic Plan**

An Integrated K-12 STEM Approach for Indiana

Indiana Department of Education, Office of Workforce & STEM Alliances | November 2018



**Indiana Department of Education STEM Council Members**

Dr. Jennifer McCormick, Superintendent of Public Instruction, Chair

Honorable Eric J. Holcomb, Governor of Indiana

Ben Barkey, Principal, Madison Elementary

Elaine Bedel, President, Indiana Economic Development Corporation

Dr. Vince Bertram, State Board Member, State Board of Education

Brad Bishop, Executive Director, OrthoWorx

Steven Braun, Senior Vice President, Mead Johnson Nutrition

Kevin Brinegar, President & CEO, Indiana Chamber of Commerce

Melody Birmingham-Byrd, Indiana State President, Duke Energy

Ben Buehler, Physics Teacher, Yorktown High School

Mary Chandler, Vice President, Cummins

Gleneva Dunham, President, American Federation of Teachers

Sue Ellspermann, President, Ivy Tech Community College

David S. Sternasty, Vice President, Corporate Engineering and Global Health,  
Safety and Environmental, Eli Lilly and Company

Jerome Flewelling, Physics Teacher, Crown Point High School

Gene Hack, Director, C4 Career Center, District 41

Doug Hunt, Engineering and Technology Education Teacher, Southern Wells Jr-Sr High School

Honorable Todd Huston, Representative

Dr. Carla Johnson, Purdue University

Teresa Lubbers, Commissioner of Higher Education

Betsy McCaw, Chief Operating Officer, Central Indiana Corporate Partnership

Reginald McGregor, Manager, Engineering Employee Development, Rolls Royce

Teresa Meredith, President, Indiana State Teachers Association

Frederick Payne, Commissioner of the Department of Workforce Development

Honorable Jeff Raatz, Senator

Ashlee Scherwinski, Science Coordinator, Indianapolis Public Schools

Katy Sparks, 3rd Grade Teacher, Grandview Elementary School, Monroe County CSS

**IDOE Staff Support:**

Kelly Wittman, Senior Advisor, IDOE

Amanda McCammon, Chief of Workforce & STEM Alliances, IDOE

Jenn Watts, Director of Policy, IDOE

Amy Rauch, Director of STEM, IDOE

Ben Carter, Director of Workforce and Innovation, IDOE

**Contributing Writers:**

Great Lakes Comprehensive Center at American Institutes for Research

The Central Indiana Corporate Partnership (CICP)





**Dr. Jennifer McCormick**  
Superintendent of Public Instruction

*Working Together for Student Success*

August 23, 2018

Dear Indiana Stakeholders,

STEM education encompasses four academic disciplines - science, technology, engineering, and mathematics - in an interdisciplinary and applied approach. On behalf of the Indiana Department of Education and the Indiana STEM Advisory Council, it is my honor to present the Indiana STEM Strategic Plan. This plan guides our vision of ensuring all K-12 Indiana students graduate with critical thinking skills. Indiana students must have access to a world-class STEM education necessary to compete in an innovation-driven economy. The objectives of this six-year strategic plan include improving STEM instruction, scaling evidence-based STEM curriculum in classrooms, and fostering early STEM career exposure. The recommendations outlined within this plan will equip students with 21st century skills, preparing future generations of Hoosiers to thrive in STEM-related businesses and industries. This human investment will contribute to Indiana's overall economic success.

As you read through the Indiana STEM Strategic Plan, please recognize our focus to create a sustainable platform for K-12 STEM exposure, instruction, and learning. Through this plan, we will provide our educators with vetted STEM professional development opportunities and our students with integrated STEM practices. As a result, Indiana will be an innovative force in an ever-changing technological global economy. I look forward to partnering with you and working together for student success.

Sincerely,

Dr. Jennifer McCormick  
State Superintendent of Public Instruction





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## Executive Summary

As one of the national leaders in innovative public education strategies focused on future talent development, Indiana is positioned to create a sustainable, collaborative strategy for K-12 Science, Technology, Engineering, and Mathematics (STEM) instruction, curriculum, and career exploration and exposure. To provide a comprehensive, coordinated, progressive, and responsive plan for STEM learning expansion, IDOE has created this Indiana STEM Strategic Plan. This plan provides guidance to all stakeholders in developing and actively creating a thriving, interactive, and relevant K-12 STEM focus.

Under the direction of the Indiana Department of Education, this Strategic Plan supports the **vision** of the Indiana STEM Advisory Council. This plan will lay the foundation for a future where: *All Indiana students in grades K-12 will graduate with critical thinking skills and be prepared for an innovation-driven economy by accessing quality, world class STEM education every day in the classroom by 2025.*

Achieving this vision requires a strong commitment to coordinating and reorienting resources across the state to implement our **mission** to: *Ensure Indiana teachers are prepared to provide every student in grades K-12 with an evidence-based, effective STEM education by 2025.*

Two key components of evidence-based, effective STEM instruction are problem/project-based learning and inquiry-based instruction.

Problem-based and/or project-based learning (PBL) is a pedagogy that anchors the teaching of disciplinary content in the context of solving a real-world problem or challenge. PBL curriculum generally spans one to several weeks of instruction that should be delivered in an integrated manner including science, mathematics, and other disciplines to show the authentic connections. The problem or challenge is introduced on the first day of the unit and is followed by the teaching of content through discussion, investigation, exploration, research and students apply their knowledge in real-time as they develop potential solutions and other deliverables.

Inquiry-based instruction is a pedagogy that can be used to deliver lessons on a daily basis in the primary disciplines and beyond. Inquiry begins with the teacher presenting the students with a question to explore or having students develop their own questions. As the students investigate the question, they give priority to evidence that is gathered through research and exploring and formulate explanations to describe their findings based on evidence or data

collected. Students connect explanations to their knowledge and current understandings in the discipline and then communicate and justify their explanations.

Central to the success of this Strategic Plan is moving toward a new approach to coordinating State investments and invoking the assistance of innovative STEM stakeholders to reach K-12 classrooms. By designating initial lead and collaborating agencies in some of the priority STEM education investment areas, the Strategic Plan encourages a more deliberative focus among new and existing efforts, the expansion of existing collaborations, and the creation of new partnerships. The intent is to establish a coordinated, coherent portfolio of STEM education investments across the State, so efforts and assets are deployed effectively and efficiently, for greatest potential impact. To do so, state agencies and STEM stakeholders will strive to achieve sets of high-reaching, long-term goals to last through future administrations.

The Indiana STEM Advisory Council also developed time-bound, shorter-term impact goals and strategic objectives to address the full integration of STEM education in K-12 learning over the course of six years. These strategic objectives and aligned impact goals are as follows:

1. Improve STEM Instruction: 100 percent of Indiana K-12 teachers will be trained in problem/project/inquiry-based approaches to learning by 2025. As of Fall 2018, school corporations reported only 32% of their staff were prepared in these areas (STEM Innovations, 2018).
  - a. Year 1 milestone - 40% of Indiana teachers will report use
  - b. Year 2 milestone - 55% of Indiana teachers will report use
  - c. Year 3 milestone - 65% of Indiana teachers will report use
  - d. Year 4 milestone - 75% of Indiana teachers will report use
  - e. Year 5 milestone - 85% of Indiana teachers will report use
  - f. Year 6 milestone - 100% of Indiana teachers will report use
2. Scale Evidence-based STEM Curriculum in Classrooms: 100 percent of Indiana K-12 schools will implement integrated, evidence-based STEM curriculum by 2025. As of Fall 2018, school corporations reported use of PLTW (76%). However, other STEM resources were much less utilized with the highest being CODE.org at 52% (STEM Innovations, 2018).
  - a. Year 1 milestone - 50% of schools will report use of STEM curriculum
  - b. Year 2 milestone - 60% of schools will report use of STEM curriculum
  - c. Year 3 milestone - 70% of schools will report use of STEM curriculum
  - d. Year 4 milestone - 80% of schools will report use of STEM curriculum

- d. Year 4 milestone - 80% of schools will report use of STEM curriculum
  - e. Year 5 milestone - 90% of schools will report use of STEM curriculum
  - f. Year 6 milestone - 100% of Indiana teachers will report use
3. Foster Early STEM Career Exposure: 100-percent of Indiana's K-12 schools will create and sustain robust STEM related business and industry partnerships in order to inform curriculum, instruction, and student experiences to foster college and career readiness. As of Fall 2018, only 16% of Indiana school corporations reported devoting time each week for students to learn about STEM-based careers (STEM Innovations, 2018). However, 33% of school corporations reported having at least one robust STEM-related business/industry partnership (STEM Innovations, 2018).
- a. Year 1 milestone - 25% of schools include focus on STEM careers and 50% of schools have at least one robust STEM business/industry partnership
  - b. Year 2 milestone - 50% of schools include focus on STEM careers and 60% of schools have at least one robust STEM business/industry partnership
  - c. Year 3 milestone - 70% of schools include focus on STEM careers and 70% of schools have at least one robust STEM business/industry partnership
  - d. Year 4 milestone - 80% of schools include focus on STEM careers and 80% of schools have at least one robust STEM business/industry partnership
  - e. Year 5 milestone - 90% of schools include focus on STEM careers and 90% of schools have at least one robust STEM business/industry partnership
  - f. Year 6 milestone - 100% of schools include focus on STEM careers and 100% of schools have at least one robust STEM business/industry partnership

Projected Indiana and national workforce demands are directly connected to rigorous STEM education. Therefore, the Indiana Department of Education (IDOE), the Commission for Higher Education (CHE), and the Department of Workforce Development (DWD) will work together to ensure Indiana students explore and experience STEM and STEM-related careers throughout their K-12 education.

This plan calls for all Indiana K-12 students to receive daily STEM instruction and access to appropriate resources in order to develop the necessary 21st Century STEM skills for application in a post-secondary setting and the future workforce.

Educators will receive opportunities to further develop their STEM pedagogy by obtaining professional development in the areas of problem/project/inquiry-based approaches to teaching and learning. These approaches will allow for educators to assist Indiana students in

the development of problem solving and critical thinking skills. The IDOE will also continue to assist schools in developing partnerships with local, state, and national industries to provide authentic experiences for students and teachers to learn and develop STEM skills.

This STEM Strategic Plan provides comprehensive guidance enabling quick response to changes in workforce demands, educational strategies, legislative directives, and other influencers impacting STEM education program development. Ultimately, the success of this Strategic Plan will be based upon state and local education agency implementation, and this success will be measured by student achievement in utilizing STEM skills to attain academic and career success. This will be evidenced through an extensive research and evaluation effort to coincide with the implementation of this Strategic Plan.

## Introduction

Indiana is enhancing the success of its students through greater access to high quality STEM instruction, curriculum, as well as STEM career exploration and exposure. These disciplines and STEM-associated skills are the building blocks of Indiana's current and future economy. Unquestionably, STEM has been identified as a priority by Governor Eric Holcomb, Superintendent of Public Instruction Dr. Jennifer McCormick, and the Indiana General Assembly. To this end, the General Assembly approved STEM Alignment Funds for the Indiana Department of Education in the 2017-2018 state budget. This funding is the first of its kind in Indiana designed to foster development of a statewide strategy providing consistent and equitable access to daily STEM education in grades K-12.

To date, state agencies specifically the Indiana Department of Education, Commission for Higher Education, and the Department of Workforce Development have programs and objectives to support STEM learning, but now all are coordinating on the common STEM plan strategy. Until the state legislature approved \$2 million in STEM Alignment Funds for the Indiana Department of Education, the only direct STEM funding was \$10 million biannually provided to CHE to further STEM teaching in Indiana. IDOE has also spearheaded an unfunded STEM school certification program. In four years of awarding certifications, 60 schools have been identified as certified STEM schools. Furthermore, STEM is embedded in many Career Technical Education (CTE) career pathways and course sequences. Disciplines are present and hands-on activities exist, but STEM pedagogy is not comprehensively or intentionally practiced in a large majority of CTE classrooms. The IDOE has gathered and promoted strong tools from leading national and state STEM organizations around best practices in STEM programming, but it has not previously developed a STEM strategy inclusive of other state stakeholders.

This Strategic Plan requires significant collaboration with multiple state agencies involved in education, workforce, policy, and economic development. A broad range of other critical stakeholders will assist in student preparation for STEM opportunities that will be available at all levels of educational achievement. The Indiana Department of Education took immediate action with the awarded funding to develop this Strategic Plan. An Indiana statewide STEM Advisory Council was formed to advise the development of this Strategic Plan for STEM education in Indiana in the fall of 2017. The STEM Advisory Council met at regular intervals over the course of a year to craft and approve this plan and make funding recommendations for the 2019 budget session.

### Indiana and the National Context

Indiana is in the midst of a STEM talent crisis in cultivating a highly-developed, technologically-advanced workforce and, as a consequence, is facing a rapidly growing STEM workforce deficit. The health and longevity of Indiana's citizenry, workforce, and educational advancement depends in large part on the acceleration of scientific and technological innovations, such as those that improve health sciences, inspire new industries, protect natural resources, and safeguard against national harm. Maintaining Indiana's historical preeminence in our nation's advanced manufacturing, biomedical, agriculture, and information technology sectors, requires a concerted and inclusive effort to ensure the state's STEM talent is equipped with the skills and training needed to excel in these and various other fields. Exposing all K-12 students to STEM will provide the preparation necessary to pursue a career in a STEM field via direct entrance into postsecondary or the workforce. Students will develop critical thinking and problem solving skills from exposure to quality STEM curriculum during their K-12 years, regardless of what career path is pursued after high school.

Rapid technological advancements have propelled world labor markets and society from traditional industry to an innovation-based economy, and as a result, have created an environment in which all people must be "...equipped with a new set of core knowledge and skills to solve difficult problems, gather and evaluate evidence, and make sense of information they receive from varied print and, increasingly, digital media" (U.S. Department of Education, 2016, p. i). These capacities can be developed through the process of learning and practicing the science, technology, engineering, and mathematics (STEM) disciplines. High-quality STEM learning experiences have been shown to foster students' abilities to work in teams, persistence in the face of challenges, and abilities to draw on gained knowledge to navigate new situations (Bailey et al., 2015; Bertrus, 2015).

Not all young people have access to a strong STEM education; namely, one that "starts as early as preschool, is culturally responsive, employs problem/project/inquiry-based approaches, and engages students in hands-on activities that offer opportunities to interact with STEM professionals" (U.S. Department of Education, 2016, p. 1). Persistent achievement and opportunity gaps in STEM across geographic, socioeconomic, racial, ethnic, and gender groups challenge our education system and result in troubling disparities that can have lasting impact. Recent data indicates that, between 2017 and 2027, STEM jobs will grow 13 percent compared to 9 percent of all other jobs in the U.S., with jobs in the specific fields of computing, advanced manufacturing, and engineering growing by 14 percent, 12 percent, and 7 percent, respectively ("Education Commission of the States"). In addition, STEM jobs, on average, have higher wage earning power. In the U.S., median earnings for STEM jobs are nearly \$40 per hour

compared with just over \$19 per hour for all other jobs (“Education Commission of the States”). Moreover, labor market data also shows traditional “non-STEM” occupations are now demanding the types of cognitive knowledge and skills typically associated with a STEM educational background (Rothwell, 2013).

In the context of these data, STEM is recognized as an essential component of a well-rounded education and is “the gateway to America’s continued economic competitiveness and national security, and the price of admission to higher education and higher standards of living for the country’s historically underrepresented populations” (U.S. Department of Education, Office for Civil Rights, p. 2). Even looking beyond the next decade, when the jobs of the future are unknown, the set of mindsets, skills, and habits gained from learning and practicing STEM are likely to better equip our current generation of learners with the academic tenacity and capacity for lifelong learning thus, enabling them to quickly adapt to rapid changes in the workplace (Dweck, Walton, & Cohen, 2014).

In Fall 2018, IDOE partnered with STEM Innovations, LLC to conduct a baseline Indiana STEM Inventory Study (and associated report) to determine the current status of implementation of STEM in the state to inform the development of the Strategic Plan. The 291 school corporations were invited by Superintendent Jennifer McCormick to participate in the IDOE STEM Inventory Questionnaire, which was to be completed by the superintendent and/or their designee. A total of 185 school corporations (64% response rate) participated in the inventory. Findings indicated that within the State of Indiana, high quality, weekly STEM instruction, specifically outside of mathematics, is sporadic at best, with only 28% of school corporations reporting weekly instructional time for science, technology, and/or engineering. Many Indiana schools (K-8) cite, this is due to the time necessary for mathematics and English remediation in order to prepare students to pass the annual statewide assessment. Although some Indiana practitioners believe that there are schools across the State infusing STEM within the curriculum and across grade spans, there are equally as many practitioners who would disagree.

Experts in the field of STEM education stress STEM learning supports knowledgeable civic engagement and provides opportunities to thrive in the workforce (Volmert, Baran, Kendall-Taylor, & O’Neil, 2013). STEM learning experiences that ask students to apply STEM concepts to real-world problems empower students to be civically engaged in a complex society with local and global challenges. A deep foundation of STEM content knowledge provides students with the ability to critically assess claims related to health, environmental, socio-economic, and many other challenges they will make decisions about each day.



Regardless of the future STEM-heavy occupational outlook and evidenced gains that can be made for students exposed to a rigorous STEM education, schools struggle to obtain and sustain STEM resources, specifically in the area of human capital. Although Indiana recently increased flexibility within teacher licensing requirements for STEM related subjects, including cybersecurity and computer science, access to STEM-trained educators remains a barrier to high quality STEM instruction in Indiana. Additional considerations regarding alternative licensure options and recruiting non-traditional participation within the field of STEM education will be necessary in order to fulfill the need. Indiana does not have enough participation from the business and industry sector within our STEM classrooms, not only as mentors and guest lecturers, but as educators. The maintenance of flexibility regarding curriculum choices at the local level is necessary to continue to allow districts to make the decision on curricular best fit for their students. Although there is no seat time requirement in the State of Indiana there are instructional time regulations regarding literacy instruction at the elementary level as well as a prescriptive list of secondary courses students must successfully complete in order to graduate. Flexibility within the graduation requirements for mathematics and science coursework must be considered when looking for ways to integrate additional STEM coursework into Hoosier students' course experiences. Indiana has led the way, however, in flexibility related to creative learning experiences and alternative participation of our students. Students and schools have gained flexibility within their schedules through the use of digital learning platforms for use during weather-related cancellations, in order to meet the required number of school days.

Research indicates schools experience challenges related to geographic isolation, having fewer numbers of experienced teachers, and limited resources in their efforts to foster school improvement and promote student success (Boyer, 2006). Indeed, children in rural communities, many of whom come from lower-income families, often start kindergarten with lower mathematics achievement and make less progress during elementary and middle school than their suburban and urban peers (Graham & Provost, 2012). Consistent with this trend, Indiana students from low-income families have consistently performed lower on state standardized science and mathematics assessments across the State.

#### **Vision, Mission, and Belief Statement**

In an effort to take the lead in coordinating across government agencies and external STEM stakeholders, IDOE included the aforementioned agencies on the Indiana STEM Advisory Council to collectively define a cohesive vision and mission.

This Strategic Plan is aligned with the **vision** of the Indiana STEM Advisory Council. Our coordinated effort will lay the foundation for a future where:

***All Indiana students in grades K-12 will graduate with critical thinking skills and be prepared for an innovation-driven economy by accessing quality, world-class STEM education every day in the classroom by 2025.***

Achieving this vision requires a strong commitment to coordinating and reorienting resources across the state to implement our **mission** to:

***Ensure Indiana teachers are prepared to provide every student in grades K-12 with an evidence-based, effective STEM education by 2025.***

Two key components of evidence-based, effective STEM instruction are problem/project-based learning and inquiry-based instruction.

Problem-based and/or project-based learning (PBL) is a pedagogy that anchors the teaching of disciplinary content in the context of solving a real-world problem or challenge. PBL curriculum generally spans one to several weeks of instruction that should be delivered in an integrated manner including science, mathematics, and other disciplines to show the authentic connections. The problem or challenge is introduced on the first day of the unit and is followed by the teaching of content through discussion, investigation, exploration, research and students apply their knowledge in real-time as they develop potential solutions and other deliverables.

Inquiry-based instruction is a pedagogy that can be used to deliver lessons on a daily basis in the primary disciplines and beyond. Inquiry begins with the teacher presenting the students with a question to explore or having students develop their own questions. As the students investigate the question, they give priority to evidence that is gathered through research and exploring and formulate explanations to describe their findings based on evidence or data collected. Students connect explanations to their knowledge and current understandings in the discipline and then communicate and justify their explanations.

If we are able to achieve our intended outcomes in this Strategic Plan, driven by our vision and executing our mission, Indiana students will be better prepared for global competitiveness, to develop into a STEM-literate population, and to ensure the longevity of a highly qualified, Hoosier workforce.

State agencies, postsecondary institutions, businesses, and philanthropists represented on our STEM Advisory Council will be critical to leverage and coordinate aforementioned resources to make significant state gains, both inside and outside the public sector systems. All Council members support STEM education, either directly or indirectly, and their continuous involvement in the implementation of this plan will be critical to achieving these ambitious goals.

**Indiana STEM Belief Statement:**

To achieve the intended outcomes in this plan, all stakeholders must work from the same definition of STEM. The state of Indiana believes STEM is defined as the following:

**STEM education is the integration of the science, technology, engineering and math disciplines with the goal of deploying problem-based and inquiry-based approaches to teaching and learning in the classroom, while developing critical thinking skills and creating pathways to postsecondary readiness and career opportunities.**

**Our Strategy to Close the STEM Deficit in Indiana**

The Indiana STEM Advisory Council, chaired by State Superintendent of Public Instruction, Dr. Jennifer McCormick, developed this Six-Year State Science, Technology, Engineering, and Mathematics Education Strategic Plan in response to the urgent need to implement a statewide, collaborative approach to tackle Indiana's STEM deficit. **Interagency coordination and innovative STEM stakeholder collaboration** is our cornerstone approach to achieving the impact goals suggested in our strategy to tackle Indiana's STEM deficit. This Strategic Plan provides a strong foundation for a state approach to accelerate STEM education, careers, and workforce training across Indiana to meet the demand of a highly-trained, technologically-advanced economy. This statewide initiative is an intentional workforce strategy to assist Indiana in providing highly skilled future talent for Indiana STEM industries. By strategically focusing on this initiative, the state will make significant gains in K-12 learning environments to better prepare rising generations of students and future Hoosier talent.

**Interagency Coordination:** This term refers to the collaboration between two or more state government agencies to solve a public problem. To implement Indiana’s STEM strategic plan, the following state agencies will work together to achieve intended outcomes: 1) Indiana Department of Education; 2) Indiana Department of Workforce Development; 3) Indiana Commission for Higher Education; 4) Office of the Indiana Governor.

Now is a time of urgency and opportunity. Through this plan, Indiana is building a true “all hands on deck” effort to move the state forward and address Indiana’s STEM deficit. Ensuring a whole government approach and driving Indiana towards a collaborative interagency structure requires investments to fully source the following government agencies:

- **Indiana Department of Education (IDOE): Implement Indiana’s newly created STEM plan to increase science, technology, engineering, and math opportunities, with a priority on K-5.**
- **Indiana Commission for Higher Education (CHE): Setting ambitious but achievable goals for Indiana’s postsecondary institutions.**
- **Indiana Department of Workforce Development (DWD): Investing in and better training the future STEM workforce pipeline.**
- **Office of the Indiana Governor: Develop a 21st Century Skilled & Ready Workforce.**

With these agencies working in concert, this Strategic Plan will set the groundwork for Indiana to achieve a number of high-reaching, long-term goals that will remain relevant and aspirational for future administrations. These goals include the following:

- Demand state STEM efforts reach an increased number of students and teachers more effectively by reorienting rules on practices to meet the needs of those who are delivering STEM education statewide: school districts, state agencies, non-profit organizations, private sectors, and colleges and universities;
- Support organizing efforts and redirecting resources around more clearly defined priorities with accountable lead government agencies;
- Invest in the rigorous research and evaluation of state-funded STEM education programs;

- Increase the impact of state investments in important areas, such as elementary STEM education, by expanding resources to a limited number of strategically defined programs, while recognizing capacity issues;
- Define resources needed to meet specific strategic objectives and impact goals, such as preparing all of Indiana's K-12 teachers with problem/project/inquiry-based approaches to teaching and learning, recognizing and rewarding excellence in STEM instruction, and fostering early career exposure in Hoosier communities; and
- Engage K-12 stakeholders and State agencies including the Indiana Department of Education (IDOE), the Department of Workforce Development (DWD), and the Commission for Higher Education (CHE) to build a strong pipeline of educators needed to close the educator deficit in STEM content disciplines in K-12 schools.

**Innovative STEM Stakeholder Collaboration:** This term refers to collaboration and partnership with a broad range of external (outside of government) stakeholders - businesses, foundations, local school districts, non-profit organizations, after school programs, instructional providers, universities, libraries, museums, etc. - to develop innovative solutions to solve our STEM deficit problem and to accelerate and scale evidence-based impact.

Great ideas come from everywhere and the most intractable educational challenges require capabilities that no one sector alone possesses. As a result, Indiana will support innovative, educational STEM collaboration and partnerships, both nationally and statewide, with a range of stakeholders and organizations to create cost-effective and results-oriented STEM education solutions to some of our state's most pressing problems. Our STEM stakeholder's solutions will support the sustainability of our workforce, generate growth of our innovation-driven economy, and stimulate ingenuity from our communities. This Strategic Plan challenges all stakeholders to assist state efforts by ushering in a new era of collaborative problem-solving, advanced innovation, and entrepreneurship while using the scientific method and design process to solve some of our greatest challenges within STEM education. This Strategic Plan also recognizes the need to support STEM ecosystems that unite all stakeholders across communities and regions in our state.

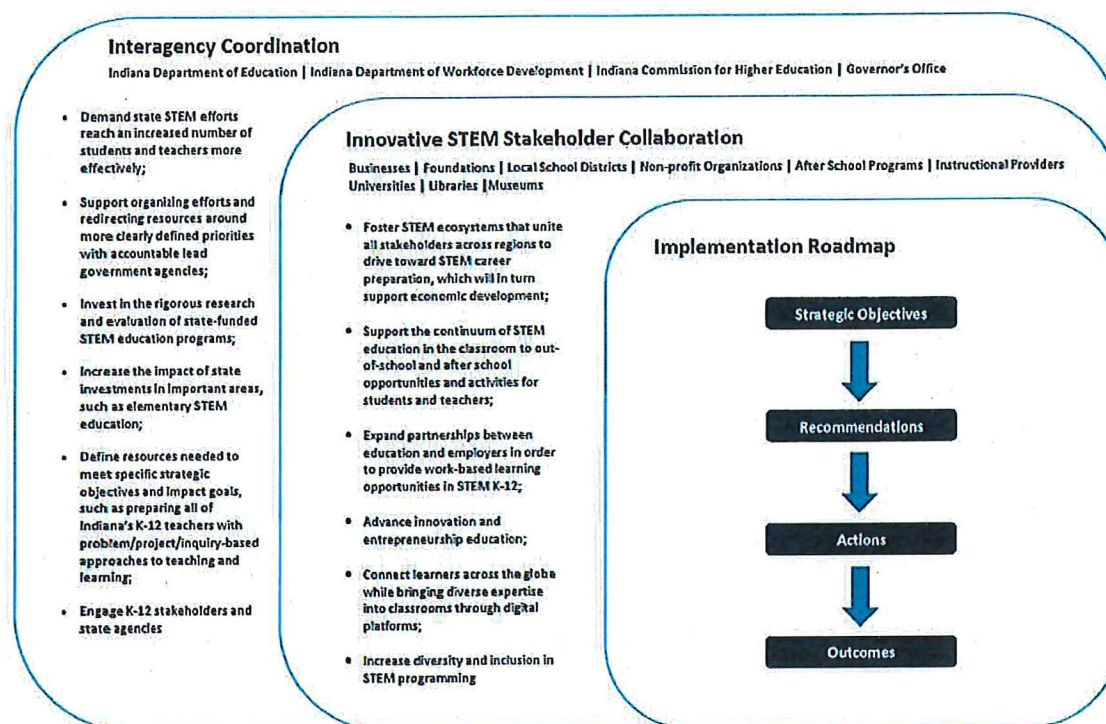
Similar to the interagency goals mentioned above, when STEM stakeholders collaborate to drive innovation, Indiana will achieve a number of high-reaching, long-term goals that will

remain relevant and aspirational for future administrations and be in support of projected federal STEM priorities. These include the following:

- Foster STEM ecosystems that unite all stakeholders across regions to drive toward STEM career preparation, which will in turn support economic development;
- Support the continuum of STEM education in the classroom to out-of-school and after school opportunities and activities for students and teachers;
- Expand partnerships between education and employers in order to provide work-based learning opportunities in STEM K-12;
- Advance innovation and entrepreneurship education;
- Connect learners across the globe while bringing diverse expertise into classrooms through digital platforms;
- Increase diversity and inclusion in STEM programming.



Figure 1 (See Appendix A for larger image)



The aforementioned high-reaching, long-term goals for interagency and innovative STEM stakeholders (Figure 1) can only be achieved if the State of Indiana collectively invests in three key areas for STEM education in the short term: 1) Instruction, 2) Curriculum, and 3) Career Exploration and Exposure. The key areas identified by the Indiana STEM Advisory Council were selected on the basis that enhanced and coordinated State investments in these areas will accelerate progress toward our mission and vision as outlined within this Strategic Plan. These key areas will serve as **strategic objectives** to drive a roadmap of implementation activities to achieve the agreed upon **impact goals** of this Strategic Plan.

#### Indiana Strategic Objectives and Impact Goals for STEM Education

This plan presents three strategic objectives with corresponding impact goals where a coordinated state implementation plan will be developed and designed to lead to major improvements over the course of six years in key educational areas.

With our high reaching, long term goals setting forth a long term vision for Indiana, the Indiana STEM Advisory Council has established a time-bound, shorter term implementation plan around

three strategic objectives for six years. This six-year timeframe was decided around the following factors:

- **State Fiscal Calendar.** This Strategic Plan will start and end on budgetary years (biennium) for the State legislature so that bi-annual impact data can be analyzed and communicated to legislators to assist with future funding and programming decisions.
- **School Calendar.** The Strategic Plan begins in the 2018 -2019 school year. We recognize that school district level implementation plans will likely not be developed or deployed until 2019, with planning stages beginning in the fall of 2018.
- **Setting Expectations for Impact.** A six-year time frame recognizes that our impact goals cannot be achieved in just a couple years, therefore we need to set the course for enough time to see significant impact in the short term.

Under the direction of the Indiana Department of Education, the Indiana STEM Advisory Council developed the following objectives, goals, and recommendations to address the full integration of STEM education in K-12 learning. High-level impact goals will drive the implementation of our recommendations to achieve these strategic objectives. These strategic objectives and aligned impact goals are as follows:

1. Improve STEM Instruction: 100 percent of Indiana K-12 teachers will be trained in problem/project/inquiry-based approaches to learning by 2025. As of Fall 2018, school corporations reported only 32% of their staff were prepared in these areas (STEM Innovations, 2018).
  - a. Year 1 milestone - 40% of Indiana teachers will report use
  - b. Year 2 milestone - 55% of Indiana teachers will report use
  - c. Year 3 milestone - 65% of Indiana teachers will report use
  - d. Year 4 milestone - 75% of Indiana teachers will report use
  - e. Year 5 milestone - 85% of Indiana teachers will report use
  - f. Year 6 milestone - 100% of Indiana teachers will report use
2. Scale Evidence-based STEM Curriculum in Classrooms: 100 percent of Indiana schools will implement integrated, evidence-based STEM curriculum by 2025. As of Fall 2018, school corporations reported use of PLTW (76% of districts). However, other STEM resources were much less utilized with the highest being CODE.org at 52% (STEM Innovations, 2018).
  - a. Year 1 milestone - 50% of schools will report use of STEM curriculum
  - b. Year 2 milestone - 60% of schools will report use of STEM curriculum
  - c. Year 3 milestone - 70% of schools will report use of STEM curriculum
  - d. Year 4 milestone - 80% of schools will report use of STEM curriculum



- e. Year 5 milestone - 90% of schools will report use of STEM curriculum
  - f. Year 6 milestone - 100% of Indiana teachers will report use
3. Foster Early STEM Career Exposure: 100 percent of Indiana schools will create and sustain robust STEM related business and industry partnerships in order to inform curriculum, instruction, and student experiences to foster college and career readiness. As of Fall 2018, only 16% of Indiana school corporations reported devoting time each week for students to learn about STEM-based careers (STEM Innovations, 2018). However, 33% of school corporations reported having at least one robust STEM-related business/industry partnership (STEM Innovations, 2018).
- a. Year 1 milestone - 25% of schools include focus on STEM careers and 50% of schools have at least one robust STEM business/industry partnership
  - b. Year 2 milestone - 50% of schools include focus on STEM careers and 60% of schools have at least one robust STEM business/industry partnership
  - c. Year 3 milestone - 70% of schools include focus on STEM careers and 70% of schools have at least one robust STEM business/industry partnership
  - d. Year 4 milestone - 80% of schools include focus on STEM careers and 80% of schools have at least one robust STEM business/industry partnership
  - e. Year 5 milestone - 90% of schools include focus on STEM careers and 90% of schools have at least one robust STEM business/industry partnership
  - f. Year 6 milestone - 100% of schools include focus on STEM careers and 100% of schools have at least one robust STEM business/industry partnership

The preparation of STEM educators and leaders is multifaceted and involves both pre-service preparation and continuous professional development opportunities throughout their professional careers. Comprehensive training in problem/project/inquiry-based approaches to teaching and learning is an essential component to deepening the understanding and abilities of educators. Developing educators and leaders within these approaches will enhance their ability to integrate STEM educational approaches into their classrooms while enhancing students' abilities to solve problems and think critically about our world.

The recruitment, training, and retention of STEM educators and leaders should be approached through a holistic and collaborative strategy involving school, district, state, and national resources. Professional supports, meaningful community-based engagement and initiatives, and expansive opportunities for educators and leaders are also critical to providing engaging STEM experiences and authentic, statewide STEM research. High-quality STEM educators will recognize effective STEM instruction and have the capacity to develop Indiana students into problem solvers and critical thinkers who appreciate, better understand, and are interested in STEM subjects. Indiana's identified stakeholders play a vital role in providing resources and

supports needed to recruit, develop, and retain highly effective STEM educators and leaders who will educate Indiana students in ways that will prepare students for future endeavors.

An investment in vetted, evidence-based, and integrated STEM curriculum aligned with supportive professional development is critical in creating a learning environment rich in rigor and supportive of initiatives expressed in this Strategic Plan. The research base to support learner-centered instruction is identified in *How People Learn* (Donovan & Bransford, 2005), which outlines a metacognitive approach to instruction. This instruction, can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them. This research is reflected in the work of the Committee on Highly Successful Schools or Programs for K-12 STEM Education as part of the National Research Council that recognized the strong evidence base for STEM instruction and school-level practices. Research in STEM teaching and learning over the past two decades characterizes effective STEM education instruction that capitalizes on students' early interest and experiences, identifies and builds on their background knowledge, and provides them with experiences to engage students in the practices of the disciplines that sustain their interest.

STEM Education is critical for preparing students for postsecondary and career success. The third strategic objective to foster early STEM career exposure will expand partnerships between educational entities and employers, and support work-based learning, including pre-apprenticeships, apprenticeships, internships, and mentorship in K-12 STEM.

The National STEM Coalition shares important statistics around the need to re-skill and upskill the current workforce. They are as follows:

- One job in the high-tech sector leads to 4.3 jobs in local goods and services industries - which results in positive ripple effects across the entire economy.
- Between 2014 and 2024, the number of STEM jobs will grow 17 percent, as compared to 12 percent for non-STEM jobs.
- At all levels of educational attainment, STEM job holders earn 11 percent higher wages compared to their same-degree counterparts in other jobs.
- Almost all of the 30 fastest-growing occupations in the next decade will require at least some background in STEM.

The statistical forecast surrounding the need for STEM background knowledge needed for the fastest growing occupations, per the National STEM Coalition, agrees with the current occupational outlook for Indiana. The top five occupations, as of 2018, for the State of Indiana

according to *Indiana Career Ready*, from the Indiana Department of Workforce Development include:

- Management Analysts
- Medical and Health Services Managers
- Registered Nurses
- Software Developers, Applications
- Plumbers, Pipefitters, and Steamfitters

Given future STEM related career opportunities and the demand for upskilling our STEM pipeline, it is important to be mindful that “content mastery alone is not sufficient for success... the workforce requires 21st century skills.” (Next Generation Science Standards). According to *The Partnership for 21st Century Learning* (“Framework for 21st Century Learning.”), 21st century skills include:

- Global awareness
- Financial, economic, business and entrepreneurial literacy
- Civic literacy
- Health literacy
- Environmental literacy
- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication
- Collaboration
- Information Literacy
- Media Literacy
- Information & Communication Technology (ICT) Literacy
- Flexibility & Adaptability
- Initiative & Self Direction
- Social & Cross-Cultural Skills
- Productivity & Accountability
- Leadership & Responsibility

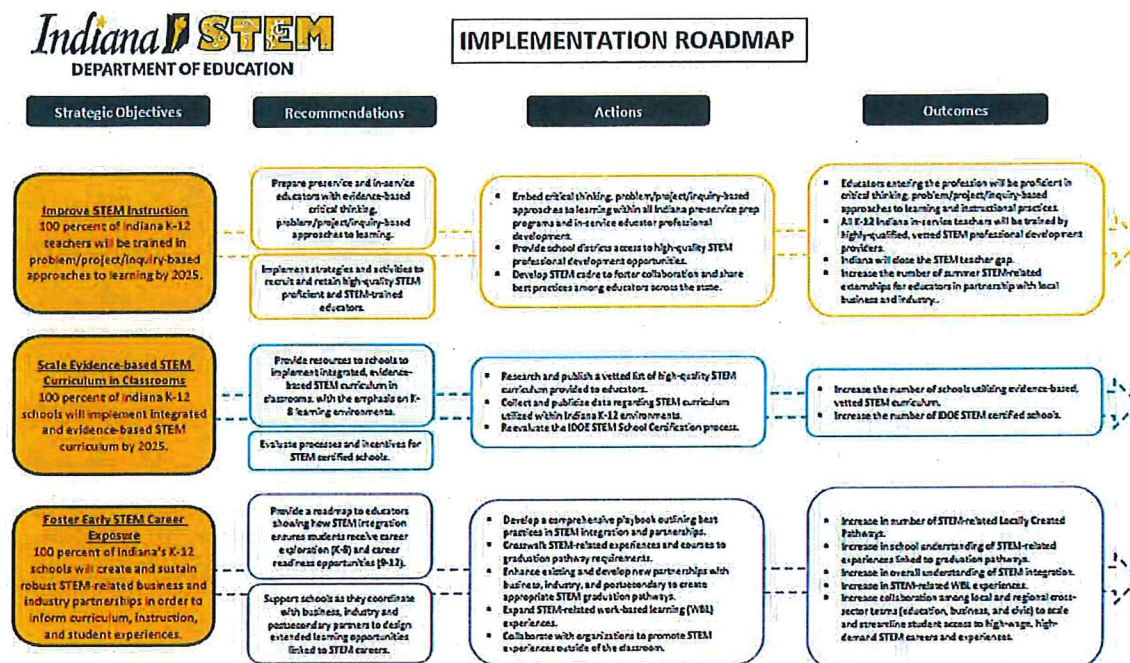
Essential to ensuring 21st century skills are obtained by all Indiana students, career exploration (K-8) and career readiness (9-12) embedded within the integration of rigorous and relevant

STEM-related experiences will be key. Experiences within out-of-school time STEM activities such as robotics and engineering clubs, internships, and apprenticeships are examples of intentional efforts which expose students to careers, connect to industry partners, ignite student passion, and increase future opportunity.

### **Implementation Roadmap**

A preliminary implementation roadmap is provided below for each of the three strategic objectives. This is an evolving roadmap and lays forth suggestions on how to implement activities and recommendations to achieve our impact goals. These recommendations, actions, and outcomes within the roadmap may help guide local programming, budget planning and requests, mechanisms for investment, communication and outreach with stakeholder communities, and reassessment of evaluation plans and practices within each of the strategic objectives. The ability of school districts to implement the strategic objectives will require financial commitments to ensure adequate capacity for design and oversight of staff, programs, training, curriculum, etc.

Figure 2 (See Appendix B for larger image)



Many schools/districts will need a starting point to implement STEM and to know where they are going. The implementation roadmap will provide high-level guidance to school districts through their local STEM implementation process. This implementation roadmap will lead to the creation of STEM playbooks for use by all stakeholder groups to provide specific guidance for local STEM planning and implementation. Throughout the six-year journey of the strategic STEM plan, the playbooks will be living documents that will grow as more schools/districts integrate STEM for student success.

### Success, Monitoring and Evaluating STEM Education Strategic Plan

For each of the three strategic objectives within the STEM Strategic Plan, recommendations, actions, and anticipated outcomes have been identified as the focus for the initial implementation of this Strategic Plan. Each component has been developed with several considerations in mind including: (1) they strive to be specific enough for school districts so progress and impact can be measured, (2) they are meant to be aligned with the strengths and assets of the designated lead agency to allow for significant collaboration, and (3) they require

a clear responsibility for involvement of State agencies (IDOE, CHE, and DWD). These considerations are made realizing state investment will play only a part in achieving the intended impact. These have been deemed as “recommendations” as they are just that -a recommended roadmap for stakeholders, agencies and school districts to follow while implementing STEM programming and state-funded STEM initiatives.

The monitoring and evaluation of STEM programming allows the Indiana Department of Education, Indiana STEM Advisory Council, and the General Assembly to better understand the impact of how implementing and practicing rigorous, integrated K-12 STEM education is contributing to the success of Indiana’s students and economy. Without data, it is difficult and irresponsible to effectively make policy or deploy state funding. The STEM evaluation will include various methods and approaches to determine the state’s return on investment (ROI) and potential for impact to scale. Through the monitoring and evaluation of this Strategic Plan, Indiana will develop and make available vetted STEM playbooks including resources, practices, and guidance for Indiana districts, schools, communities and other STEM partners. Ultimately, the success of this Strategic Plan will be based upon collaborative and comprehensive state and local education agency implementation and utilization of STEM skills to attain academic and career success.

#### **Conclusion: Future Opportunities**

Through the adoption of this Strategic Plan, Indiana will lead the nation in STEM instruction, curriculum implementation, and early STEM career exposure to enhance and strengthen Indiana’s position in the national and global economies. This will shape the future both academically and economically for the students and citizens of Indiana. By implementing a fully integrated K-12 STEM education system, Indiana will build sustainable, accessible, equitable opportunities for every child. Consequently, students will successfully exit Indiana schools with the profound skills and capabilities associated with quality STEM education.



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## Interagency

Indiana Department of Education | Indiana Department of Workforce Development | Indiana Commission for Higher Education | Governor's Office

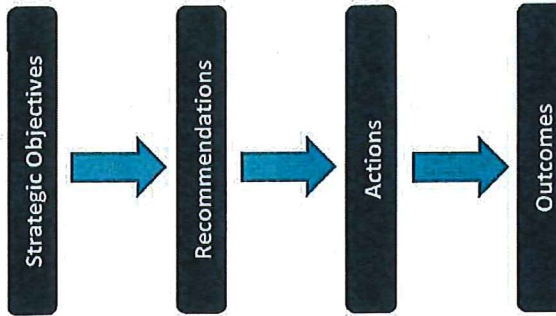
- Demand state STEM efforts reach an increased number of students and teachers more effectively;
- Support organizing efforts and redirecting resources around more clearly defined priorities with accountable lead government agencies;
- Invest in the rigorous research and evaluation of state-funded STEM education programs;
- Increase the impact of state investments in important areas, such as elementary STEM education;
- Define resources needed to meet specific strategic objectives and impact goals, such as preparing all of Indiana's K-12 teachers with problem/project/inquiry-based approaches to teaching and learning;
- Engage K-12 stakeholders and state agencies

## Innovative STEM Stakeholder

Businesses | Foundations | Local School Districts | Non-profit Organizations | After School Programs  
Instructional Providers Universities | Libraries | Museums

- Foster STEM ecosystems that unite all stakeholders across regions to drive toward STEM career preparation, which will in turn support economic development;
- Support the continuum of STEM education in the classroom to out-of-school and after school opportunities and activities for students and teachers;
- Expand partnerships between education and employers in order to provide work-based learning opportunities in STEM K-12;
- Advance innovation and entrepreneurship education;
- Connect learners across the globe while bringing diverse expertise into classrooms through digital platforms;
- Increase diversity and inclusion in STEM programming

## Implementation



# IMPLEMENTATION ROADMAP

### Strategic Objectives

### Recommendations

### Actions

**Improve STEM Instruction**  
100 percent of Indiana K-12 teachers will be trained in problem/project/inquiry-based approaches to learning by 2025.

Prepare preservice and in-service educators with evidence-based critical thinking, problem/project/inquiry-based approaches to learning.

Implement strategies and activities to recruit and retain high-quality STEM proficient and STEM-trained educators.

- Embed critical thinking, problem/project/inquiry-based approaches to learning within all Indiana pre-service prep programs and in-service educator professional development.
- Provide school districts access to high-quality STEM professional development opportunities.
- Develop STEM cadre to foster collaboration and share best practices among educators across the state.

- Educators entering the profession will be proficient in critical thinking, problem/project/inquiry-based approaches to learning and instructional practices.
- All K-12 Indiana in-service teachers will be trained by highly-qualified, vetted STEM professional development providers.
- Indiana will close the STEM teacher gap.
- Increase the number of summer STEM-related externships for educators in partnership with local business and industry.

**Scale Evidence-based STEM Curriculum in Classrooms**  
100 percent of Indiana K-12 schools will implement integrated and evidence-based STEM curriculum by 2025.

Provide resources to schools to implement integrated, evidence-based STEM curriculum in classrooms, with the emphasis on K-8 learning environments.

Evaluate processes and incentives for STEM certified schools.

- Research and publish a vetted list of high-quality STEM curriculum provided to educators.
- Collect and publicize data regarding STEM curriculum utilized within Indiana K-12 environments.
- Reevaluate the IDOE STEM School Certification process.

- Increase the number of schools utilizing evidence-based, vetted STEM curriculum.
- Increase the number of IDOE STEM certified schools.

**Foster Early STEM Career Exposure**  
100 percent of Indiana's K-12 schools will create and sustain robust STEM-related business and industry partnerships in order to inform curriculum, instruction, and student experiences.

Provide a roadmap to educators showing how STEM integration ensures students receive career exploration (K-8) and career readiness opportunities (9-12).

Support schools as they coordinate with business, industry and postsecondary partners to design extended learning opportunities linked to STEM

- Develop a comprehensive playbook outlining best practices in STEM integration and partnerships.
- Crosswalk STEM-related experiences and courses to graduation pathway requirements.
- Enhance existing and develop new partnerships with business, industry, and postsecondary to create appropriate STEM graduation pathways.
- Expand STEM-related work-based learning (WBL) experiences.
- Collaborate with organizations to promote STEM experiences outside of the classroom.

- Increase in number of STEM-related Locally Created Pathways.
- Increase in school understanding of STEM-related experiences linked to graduation pathways.
- Increase in overall understanding of STEM integration.
- Increase in STEM-related WBL experiences.
- Increase collaboration among local and regional cross-sector teams (education, business, and civic) to scale and streamline student access to high-wage, high-demand STEM careers and experiences.





DEPARTMENT OF EDUCATION

**Dr. Jennifer McCormick**  
Superintendent of Public Instruction*Working Together for Student Success*

### CS Training Badge

The Indiana Department of Education (IDOE) has developed a digital badge to distribute to Indiana educators that have completed computer science training by a vetted provider. This badge allows IDOE to reward and show gratitude to educators that complete training, while also giving educators a way to showcase their knowledge and skills. Educators must complete an online form to receive this badge, which additionally gives IDOE the opportunity to collect data about educators that complete the training. IDOE began distributing the badge through Nextech in December 2018 and will continue to distribute the badge to those who complete Nextech professional development. A sample of the badge can be found below.

## INDIANA DEPARTMENT OF EDUCATION





DEPARTMENT OF EDUCATION

**Dr. Jennifer McCormick**  
Superintendent of Public Instruction

*Working Together for Student Success*

## MEMORANDUM

To: Superintendents and Principals  
 From: Amanda McCammon, Chief of Workforce & STEM Alliances & Dr. Amy Rauch,  
 Director of STEM  
 Date: November 9, 2018  
 Re: 2019-2020 STEM K-6 Acceleration Grant Cohort 2 Awardees

Background

For Fiscal Year 2018, the Indiana General Assembly appropriated funding to IDOE for STEM Program Alignment. Funded activities will develop recommendations to improve elementary and secondary student achievement and participation in STEM subjects throughout Indiana. While improving coordination among the various STEM statewide initiatives through funded opportunities, IDOE will enhance student success by accelerating exposure to and learning in the STEM disciplines for grades K-12. IDOE will provide STEM support activities to funded programs during 2018-2019 and 2019-2020 schools who have an interest in accelerating, scaling, or starting school activities based in STEM.

Guidance

In an effort to ensure a wide field of STEM practices for research purposes, a variety of awardees implementing various state and nationally recognized curriculum options were selected as grant recipients. IDOE received a total of 85 proposals for the second round of STEM competitive grants, with 14 school corporations being selected for grant awards.

**The following is the list of awardees for Cohort 2 (2019-2020SY) K-6 STEM Acceleration Grants:**

Barr-Reeve Community Schools Inc  
 East Washington School Corporation  
 Fairfield Community Schools  
 Milan Community Schools  
 M S D Decatur Township  
 Mt. Vernon Community School Corporation  
 North Putnam Community Schools  
 North White School Corporation  
 Orleans Community Schools  
 Randolph Eastern School Corporation  
 Randolph Southern School Corporation  
 River Forest Community School Corporation  
 South Ripley Community School Corporation  
 Tri-Central Community Schools



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### **IDOE/PLTW Cybersecurity Grant Recipients**

The following public school districts were awarded a grant for up to \$8,000 from IDOE to cover teacher training and two years of program fees to implement Project Lead The Way Cybersecurity curriculum beginning in the 2019-2020 school year.

<b>District Name</b>	<b>School Name</b>
Loogootee Community School Corporation	Loogootee High School
Center Grove Community School Corporation	Center Grove High School
Decatur County Community Schools	North Decatur Jr. Sr. High School
New Albany Floyd County School Corporation	New Albany High School
Noblesville Schools	Noblesville High School
Westfield Washington Schools	Westfield High School
Bloomfield School District	Bloomfield Jr/Sr High School
Washington Community Schools	Washington High School
East Gibson School Corporation	Wood Memorial High School
Evansville Vanderburgh School Corporation	Southern Indiana Career and Technical Center
Whitley County Consolidated Schools	Columbia City High School
Indianapolis Public Schools	George Washington High School
Bartholomew Consolidated School Corporation	C4 Columbus Area Career Connection -North
Brownsburg Community School Corporation	Brownsburg High School
Anderson Community School Corporation	Anderson High School
Madison Consolidated Schools	Madison Consolidated High School
Hamilton Southeastern School Corporation	Fishers High School
Oak Hill United School Corporation	Oak Hill High School
Southwest Allen County Schools	Homestead High School
Greater Clark County Schools	Jeffersonville High School
Avon Community School Corporation	Avon High School
Tippecanoe Valley School Corporation	Tippecanoe Valley High School
Carmel Clay Schools	Carmel High School
Franklin Community Schools	Franklin Community High School
South Harrison Community School Corporation	Corydon Central High School
Eastbrook Community Schools	Eastbrook High School
MSD of Decatur Township	Decatur Central High School
Shenandoah School Corporation	Shenandoah High School



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Indiana Math and Science Academy North	Indiana Math and Science Academy North
Brown County Schools	Brown County High School
MSD Warren Township	Walker Career Center
Jennings County School Corporation	Jennings County High School
Perry Township Schools	Southport High School
LaPorte Community School Corporation	LaPorte High School
Greater Jasper Consolidated Schools	Jasper High School
New Castle Schools	New Castle Career Center
Mooreville Consolidated School Corporation	Mooreville High School
Lakeland School Corporation	Lakeland High School
Northwest Allen County Schools	Carroll High School
Salem Community Schools	Salem High School
Hamilton Southeastern Schools	Hamilton Southeastern High School
Michigan City Area Schools	Michigan City High School
Metropolitan School District of Lawrence Township	McKenzie Center for Innovation & Technology
MSD of Boone Township	Hebron High School
Wabash City Schools	Wabash High School
Rochester Community School Corp	Rochester Community High School
Lake Central School Corporation	Lake Central High School
School City of Hobart	Hobart High School



## INTRODUCTION TO COMPUTATIONAL THINKING FOR EVERY EDUCATOR ONLINE COURSE SYLLABUS

### Course Description

The goals of this course are to increase awareness of Computational Thinking (CT) among educators world-wide and encourage them to integrate CT into their curricula. The course is divided into five sections, each focusing on the following:

- **INTRODUCING COMPUTATIONAL THINKING:** What is CT? - What is computational thinking, where does it occur, why should you care, and how is it being applied?
- **PATTERNS IN EVERYDAY LIFE:** Explore examples of patterns in various subjects and develop your own processes for approaching a problem through pattern recognition.
- **EXPLORING ALGORITHMS:** Walk through examples of algorithms used in your subject. Recognize why algorithms are powerful tools to increase what you can do and that technology can be useful for implementing and automating them.
- **DEVELOPING ALGORITHMS:** Increase your confidence in applying the computational process to a given problem and recognize how algorithms can articulate a process or rule.
- **FINAL PROJECT: APPLYING CT:** Create a statement of how CT applies to your subject area and design a plan to integrate it into your work and classroom.

### Course Structure

This course consists of five modules including a two-part final project. Each module includes a mix of lessons and activities. Examples of lesson activities includes example simulations, programs, and exercises that increase awareness of CT, showcase the integration of CT, and allow you to interact and develop CT into your subject area. The lesson activities also provide how-to steps for accomplishing tasks in the activities, links to learning more, activities for practicing the skills and getting feedback, and a discussion community for sharing ideas and getting help. The final project provides a chance for you to apply skills learned in the course.

### Course Goals and Outcomes

By the end of this course, the goal is that you will be able to teach CT concepts in your classroom right away. Instead of creating all-new lessons, CT can enhance many of your current classroom lessons.





## Participant Profile

This Computational Thinking course is designed for all K-12 education audiences seeking to integrate computational thinking into their classroom.

## ISTE Standards and Competencies

The course is designed and developed around ISTE's Standards, with a strong emphasis on the [ISTE Standards for Educators](#), and [ISTE Standards for Computer Science Educators](#).

## Module Descriptions

### **MODULE 1: INTRODUCING COMPUTATIONAL THINKING**

In this module, you can explore the foundations of computational thinking, where these concepts occur within different subject areas, examine the impact of incorporating computational thinking into practice, and begin to explore how it is being applied within various subject areas.

### **MODULE 2: PATTERNS IN EVERYDAY LIFE**

In this module, you can try some activities that you can also modify for use in your classroom. These activities involve editing existing code, but no prior experience with programming is required. This is an opportunity to experience the process of computational thinking in different subjects, so feel free to try the activities outside of your subject area.

### **MODULE 2: EXPLORING ALGORITHMS**

In this module, you can try some activities that could be modified to use in your classroom. These activities do not require any coding, and are intended to provide examples of what is possible using algorithms and computational thinking.

### **MODULE 4: DEVELOPING ALGORITHMS**

In this module, you can try some activities that you can modify for use in your classroom. These activities involve developing an algorithm and might involve editing existing code or writing additional code. No prior experience with programming is required. These activities apply the process of computational thinking, with a focus on algorithm design.

### **MODULE 5: APPLYING COMPUTATIONAL THINKING**

In this module, you will use the skills from this course to increase the efficiency or effectiveness of the integration of computational thinking in your classroom teaching and complete a two-part project. In Part I of this project, you will create a statement of how computational thinking applies to your domain or subject. In Part II of this project, you will document your plan for integrating at least one computational thinking concept into a lesson, activity, unit, project, module, or curriculum.





## Completion Criteria

To receive the certificate of completion, you must submit all assignments and turn in your final project.

## Disclaimers

This course is developed with support from Google and is a production of the International Society for Technology in Education (ISTE). This course contains examples and resource materials that are provided for participants' convenience and information. The inclusion of any material is not intended to endorse any views expressed, or products or services offered. These materials may contain the views and recommendations of various subject matter experts as well as hypertext links, and websites to information created and maintained by other public and private organizations. The opinions expressed in any of these materials do not necessarily reflect the positions or policies of ISTE. ISTE does not control or guarantee the accuracy, relevance, timeliness, or completeness of any outside information included in these materials.

NOTE: A variety of applications are highlighted throughout this course. Prior to using any of them with students, it is imperative that participants check the account requirements for each application against their school/district student data privacy policy to insure the application complies with district policy. In addition, some applications' Terms of Service may require parental permission to be COPPA and FERPA compliant for students younger than 13 years of age.

Content in this course is subject to change at instructor's or ISTE's discretion.



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Superintendent of Public Instruction

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### CTE Funding Memo Updates

Additional computer science courses were added to the CTE Funding Memo for the 2019-2020 school. Computer science courses included in the funding memo and their corresponding funding levels are indicated below. Updates to this year's memo are highlighted in yellow.

IDOE Course Code	IDOE Course Name	Cluster/Sub ject Area	Credits Per Semester	Max Credits Allowed	CTE Funding Threshold	CTE Funding Level
4801	Computer Science I	IT	1	2	High Value	\$680
5236	Computer Science II	IT	1-3	6	High Value	\$680
5253	Computer Science III: Cybersecurity	IT	1-3	6	High Value	\$680
5250	Computer Science III: Databases	IT	1-3	6	High Value	\$680
5251	Computer Science III: Informatics	IT	1-3	6	High Value	\$680
5249	Computer Science III: Software Development	IT	1-3	6	High Value	\$680
5252	Computer Science III: Special Topics	IT	1-3	6	High Value	\$680
4803	Introduction to Computer Science	IT	1	2	Introductory	\$300



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**Dr. Jennifer McCormick**  
Superintendent of Public Instruction*Working Together for Student Success***FOR IMMEDIATE RELEASE**  
**January 10, 2019**

## **Indiana Department of Education Announces Advancement and Further Commitment to Computer Science in the Classroom**

*Becomes the third state to implement Code.org's nine policies*

INDIANAPOLIS – The Indiana Department of Education (IDOE) announced today a further commitment to offering computer sciences opportunities in the classroom by becoming only the third state to implement all nine policies of Code.org's Advocacy Coalition.

"An education built upon science, technology, engineering, and mathematics is vital for academic success and life beyond high school," said Dr. Jennifer McCormick, Indiana Superintendent of Public Instruction. "Today marks a milestone of Indiana's commitment to STEM education. I am proud of what we have accomplished and look forward to continuing the journey."

More than a priority in IDOE 2019 legislative agenda, STEM has been a focus of the Department's mission since 2017. The 2018 passing of Senate Enrolled Act 172 helped further this commitment by mandating all schools have computer science curriculum implemented by 2021. This legislation also ensures Indiana educators are trained in teaching computer science.

Through its partnership with Code.org, IDOE has furthered its commitment to computer science by implementing Code.org's nine policies. The focus of these policies is to make computer science fundamental to K-12 education. Today marks the attainment of those nine policies, which are:

1. Create a state plan for K-12 computer science
2. Define computer science and establish rigorous K-12 computer science standards
3. Allocate funding for rigorous computer science teacher professional learning and course support
4. Implement clear certification pathways for computer science teachers
5. Create programs at institutions of higher education to offer computer science to preservice teachers
6. Establish dedicated computer science positions in state and local education agencies
7. Require that all secondary schools offer computer science with appropriate implementation timelines
8. Allow computer science to satisfy a core graduation requirement
9. Allow computer science to satisfy an admission requirement at institutions of higher education



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For more information regarding IDOE's commitment to computer science, including resources for schools, please visit: [www.doe.in.gov/wf-stem/computer-science](http://www.doe.in.gov/wf-stem/computer-science). To learn more about Code.org's nine policies, please visit: [https://code.org/files/Making\\_CS\\_Fundamental.pdf](https://code.org/files/Making_CS_Fundamental.pdf).

**-30-**

**Media Contact:** Adam Baker, Press Secretary  
(317) 232-0550, [abaker@doe.in.gov](mailto:abaker@doe.in.gov)



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## **Code.org Advocacy Coalition's Nine Policy Recommendations**

The Code.org Advocacy Coalition has put forward nine policy recommendations for states that want to make computer science a fundamental part of K-12 education. Below, the nine policies are outlined, as well as Indiana's progress toward meeting them.

### **1. Create a state plan for K-12 computer science**

A computer science strategic plan was developed and published in November 2018 through work by Indiana Computer Science Champs. This plan is a working document and is updated as-needed.

### **2. Define computer science and establish rigorous K-12 computer science standards**

K-8 computer science standards were adopted in April 2016 and are embedded in the state science standards. A comprehensive document outlining Indiana's K-12 computer science standards was published in November 2018.

### **3. Allocate funding for a rigorous computer science teacher professional learning and support**

In 2018, the Indiana Department of Education entered into a \$670,000 contract with Nextech to offer professional development for teachers of all grade levels. In the 2019 legislative session, the Indiana General Assembly allocated \$3,000,000 in FY 2020 and FY 2021 for K-12 teacher professional development in computer science.

### **4. Implement clear certification pathways for computer science teachers**

In December 2018, action was taken to begin the process of changing the name of the "Computer Education" license to "Computer Science." The names of the corresponding educator standards and assessment for educator licensure are also being updated to "Computer Science."

### **5. Create programs at institutions of higher education to offer computer science to preservice teachers**

A variety of computer science teacher preparation programs exist across the state including Indiana University and Ball State University.



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**Dr. Jennifer McCormick**  
Superintendent of Public Instruction*Working Together for Student Success***6. Establish dedicated computer science positions in state and local education agencies**

The Indiana Department of Education has employed a computer science specialist since June 2018.

**7. Require that all secondary schools offer computer science with appropriate implementation timelines**

In May 2018, Senate Enrolled Act 172 was signed into law requiring all high schools to offer at least a one-semester elective computer science course every year by 2021.

**8. Allow computer science to satisfy a core graduation requirement**

The Department of Education has approved specific computer science courses that can count towards CORE 40 graduation requirements such as mathematics, science, or quantitative reasoning.

**9. Allow computer science to satisfy an admission requirement at institutions of higher education**

A diploma with Core 40 designation or higher is required for admission to most Indiana higher education institutions, and computer science can satisfy requirements for those diplomas.



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## Computer Science Curriculum Showcase

Thursday, February 21

Morning Session: 9:00 AM - 11:30 AM EST				
Time	Blue Room	Orange Room	Green Room	Conference Room A
9:00 AM	Project Lead The Way	Learning.com	C-STEM (UC Davis)	Beauty and Joy of Computing
9:30 AM	Break/Transition Time			
9:40 AM	Code.org (Nextech)	Codesters.com	iDEW (IUPUI)	
10:10 AM	Break/Transition Time			
10:20 AM	Codelicious	CodeHS	Mobile CSP	
10:50 AM	Break/Transition Time			
11:00 AM	Everyone Can Code (Apple)	Google CS First (Five-Star Tech)	NICERC - Cyber and CS Curriculum	
11:30 AM	There will be no concurrent sessions at this time, but vendors will be available in the vendor hall. <u>Lunch is on your own.</u>			
Afternoon Session: 12:00 PM - 2:30 PM EST				
Time	Blue Room	Orange Room	Green Room	Conference Room A
12:00 PM	Project Lead The Way	Learning.com	C-STEM (UC Davis)	Beauty and Joy of Computing
12:30 PM	Break/Transition Time			
12:40 PM	Code.org (Nextech)	Codesters.com	iDEW (IUPUI)	
1:10 PM	Break/Transition Time			
1:20 PM	Codelicious	CodeHS	Mobile CSP	
1:50 PM	Break/Transition Time			
2:00 PM	Everyone Can Code (Apple)	Google CS First (Five-Star Tech)	NICERC - Cyber and CS Curriculum	

Vendors will also have tables in the vendor hall. Additionally, the following organizations will be present in the vendor hall: TechPoint Foundation for Youth, Girls Who Code, AP-TIP IN, Certiport, and the Computer Science Teachers Association (CSTA).

**\*\*Please note that the Indiana Department of Education in no way endorses or specifically recommends any particular vendor that is either being showcased at the Computer Science Curriculum Showcase or that has provided materials. The purpose of the event is simply to provide school corporations with better access to potential services and products from applicable vendors.**



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## Vendor Information

Vendor Name	Website	Target Grade-Levels
Apple	<a href="http://www.apple.com/education/teaching-cod-e">www.apple.com/education/teaching-cod-e</a>	K-12
AP-TIP IN	<a href="https://iei.nd.edu/">https://iei.nd.edu/</a>	9-12
Beauty and Joy of Computing	<a href="https://bjc.berkeley.edu/">https://bjc.berkeley.edu/</a>	9-12
Certiport	<a href="http://www.certiport.com">www.certiport.com</a>	9-12
CodeHS	<a href="http://www.codehs.com">www.codehs.com</a>	6-12
Codelicious	<a href="http://www.codelicious.com">www.codelicious.com</a>	3-8
Codesters	<a href="http://www.codesters.com">www.codesters.com</a>	4-8
Code.org (Nextech)	<a href="http://www.nextech.org">www.nextech.org</a>	K-12
CSTA - Hoosier Heartland Chapter	<a href="http://www.csteachers.org">www.csteachers.org</a>	Teachers
C-STEM (UC Davis)	<a href="http://c-stem.ucdavis.edu/curriculum/">http://c-stem.ucdavis.edu/curriculum/</a>	K-12
Girls Who Code	<a href="http://www.girlswhocode.com/">www.girlswhocode.com/</a>	3-12
Google CS First (Five-Star Technology)	<a href="http://www.five-startech.com">www.five-startech.com</a>	K-12
iDEW (IUPUI)	<a href="http://www.idew.org">www.idew.org</a>	9-12
Learning.com	<a href="http://www.learning.com">www.learning.com</a>	K-8
Mobile CSP	<a href="http://www.mobile-csp.org">www.mobile-csp.org</a>	8-12
National Integrated Cyber Education Research Center (NICERC)	<a href="http://www.nicerc.org">www.nicerc.org</a>	6-12
Project Lead The Way	<a href="http://www.pltw.org">www.pltw.org</a>	K-12
TechPoint Foundation for Youth	<a href="https://www.techpointyouth.org/">https://www.techpointyouth.org/</a>	K-12

### Event Location:

Center Grove Innovation Center  
2789 Trojan Lane  
Greenwood, IN 46143

Contact [Jake Koressel](#) with questions.

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Indiana Department of Education  
Academic Standards Course Framework

**COMPUTER SCIENCE MIDDLE LEVEL**

*Computer Science – Middle Level* builds upon the computer science standards for grade bands K-2 and 3-5, incorporates the computer science standards for grade band 6-8, and helps to provide a seamless transition to introductory high school coursework. The standards focus on Indiana’s Five Core Computer Science Concepts: Data and Information, Computing Devices and Systems, Programs and Algorithms, Networking and Communication, and Impact and Culture. Focusing on these domains offers students the opportunity to experience and apply a variety of computer science concepts in order to build a solid foundation for more advanced and specialized studies.

- DOE Code: 0488
- Recommended Grade Level: 6-8
- Recommended Prerequisites: None

**Middle School Curriculum Requirement**

After June 30, 2021, each public school, including each charter school, shall include computer science in the public school's curriculum for students in kindergarten through grade 12 (IC 20-30-5-23). 6-8 grade band standards required of every student are indicated in **bold** below. **Similarly, those bolded are the only standards that may be assessed on grade 6 science ILEARN assessments.**

**Implementation Guidance**

While it is encouraged to integrate computer science concepts into other disciplines, schools may desire to offer computer science as a standalone course to cover required computer science standards or to cover additional topics that an integrated approach may not allow. This course can be offered in a semester-long setting, as well as in a six- or nine-week rotation. Implementation is flexible due to the varying structure and organization of middle schools. Regardless of approach, all required (bold) standards should be covered. Other topics can be covered as implementation allows in order to enhance and deepen the computer science learning experience of students.

**Career and Technical Student Organizations (CTSOs)**

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in Business Professionals of America, DECA, or Future Business Leaders of America, the CTSOs for this area.

## Content Standards

### Domain – Data and Information

#### Standards

- 6-8.DI.1** Use the basic steps in algorithmic problem-solving to design solutions (e.g., problem statement and exploration, examination of sample instances, design, implementing a solution, testing, and evaluation).
- 6-8.DI.2** Describe the process of parallelization as it relates to problem solving.
- 6-8.DI.3** Represent data in a variety of ways (e.g., text, sounds, pictures, and numbers), and use different visual representations of problems, structures, and data (e.g., graphs, charts, network diagrams, flowcharts).
- 6-8.DI.4** Understand the notion of hierarchy and abstraction in computing including high-level languages, translation, instruction set, and logic circuits.
- 6-8.DI.5** Demonstrate interdisciplinary applications of computational thinking and interact with content-specific models and simulations to support learning and research.
- CSML-1.1 Collect data using computational tools, identify data trends and patterns, and create visual representations of the data to communicate findings.
- CSML-1.2 Analyze data representations to determine the intended purpose.

### Domain – Computing Devices and Systems

#### Standards

- 6-8.CD.1** Demonstrate an understanding of the relationship between hardware and software.
- 6-8.CD.2** Apply troubleshooting strategies to identify and solve routine hardware and software problems that occur during everyday computer use.
- 6-8.CD.3** Describe the major components and functions of computer systems and network.
- 6-8.CD.4** Describe what distinguishes humans from machines focusing on human intelligence versus machine intelligence and ways we can communicate, as well as ways in which computers use models of intelligent behavior (e.g., robot motion, speech and language understanding, and computer vision).
- CSML-2.1 Understand how digital information is stored locally and remotely.
- CSML-2.2 Identify how to manipulate a device's system settings.

### Domain – Programs and Algorithms

#### Standards

- 6-8.PA.1** Select appropriate tools and technology resources to support learning and personal productivity, publish individual products, and design, develop, and publish data, accomplish a variety of tasks, and solve problems.
- 6-8.PA.2** Implement problem solutions using a programming language that includes looping behavior, conditional statements, logic, expressions, variables, and functions.
- 6-8.PA.3** Demonstrate dispositions amenable to open-ended problem solving and programming (e.g., comfort with complexity, persistence, brainstorming, adaptability, patience, propensity to tinker, creativity, accepting challenge).

## Domain – Networking and Communication

### Standards

- 6-8.NC.1 Collaboratively design, develop, publish, and present products (e.g., videos, podcasts, websites) using technology resources that demonstrate and communicate curriculum concepts.**
- 6-8.NC.2 Exhibit dispositions necessary for collaboration: providing useful feedback, integrating feedback, understanding and accepting multiple perspectives, socialization.**
- CSML-4.1 Use the internet as a tool for research, publication, and communication.
- CSML-4.2 Describe how digital information is sent and received across the internet.

## Domain – Impact and Culture

### Standards

- 6-8.IC.1 Exhibit legal and ethical behaviors when using technology and information and discuss the consequences of misuse.**
- 6-8.IC.2 Analyze the positive and negative impacts of technology on one's personal life, society, and our culture.**
- 6-8.IC.3 Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.**
- 6-8.IC.4 Describe ethical issues that relate to computers and networks (e.g., security, privacy, ownership, and information sharing), and discuss how unequal distribution of technological resources in a global economy raises issues of equity, access, and power.**
- CSML-5.1 Discuss the management of one's digital footprint, the permanence of actions in the digital world, and implications related to privacy.
- CSML-5.2 Determine strategies to protect sensitive, digital information.
- CSML-5.3 Explore the various domains of computer science, as well as the intersection of computer science and other disciplines..
- CSML-5.4 Investigate how computer science fits into short and long term academic and career goals.



DEPARTMENT OF EDUCATION

**Dr. Jennifer McCormick**  
Superintendent of Public Instruction*Working Together for Student Success***MEMORANDUM**

To: Dr. Jennifer McCormick  
Kelly Wittman  
Dr. Ken Folks  
Robin LeClaire  
Dr. Andrew Melin

From: Dr. Jennifer Jensen, Assistant Director, Curriculum and Instruction

Date: March 15, 2019

Re: Core 40 Science Requirement Recommendations

**Background**

Pursuant to HEA 1426, the State Board shall adopt rules regarding science requirements for the Core 40 curriculum models. IDOE formed a Core 40 Science Committee of various stakeholders including secondary subject matter experts, postsecondary subject matter experts, industry leaders, the Commission for Higher Education, and the State Board. A complete list of participants can be found at the end of this memorandum.

The Core 40 Science Committee first met October 23, 2018, to consider two questions: (1) Should the language around science requirements for the Core 40 diploma change; (2) What courses should satisfy the science requirements for the Core 40 diploma? All courses that satisfy an approved CTE Pathway were given careful consideration, utilizing the published standards for each course and the experience of those on the committee. Additional conversation was held around whether or not computer science courses might fulfill a science requirement. After the initial meeting, a survey was sent to all members of the committee. Utilizing the results of the survey, a second meeting was scheduled on January 16. The committee was highly engaged in these critical conversations regarding science curriculum and requirements. This meeting was followed by a second survey, indicating consensus. A final virtual meeting was held on March 13 to finalize the Core 40 Science Committee recommendations.

**Recommendations**

1. The Core 40 Science Committee recommends that the language regarding science requirements should not change. Students are required to have two credits of Biology, two credits of Chemistry or Physics or Integrated Chemistry-Physics, and two additional Core 40 science credits.

2. The Core 40 Science Committee recommends expanding the list of courses that would satisfy the two additional credits of Core 40 science to include the following courses:

- 4570 AP Computer Science A
- 4568 AP Computer Science Principles
- 4854 IB Computer Science Higher Level
- 4856 IB Computer Science Standard Level
- 8118 Cambridge International AS Level Computer Science
- 8116 Cambridge International A Level Computer Science
- 4801 Computer Science I
- 5236 Computer Science II
- 5250 Computer Science III: Databases
- 5251 Computer Science III: Informatics
- 5249 Computer Science III: Software Development
- 5253 Computer Science III: Cybersecurity
- 5261 PLTW Cybersecurity
- 4816/5518 Aerospace Engineering
- 4818 Environmental Sustainability
- 4814/5644 Principles of Engineering
- 5008 Animal Science
- 5180 Natural Resources
- 5170 Plant and Soil Sciences
- 5229 Sustainable Energy Alternatives
- 5216 PLTW Human Body Systems
- 5217 PLTW Medical Interventions
- 5215 Health Science Education II: Physical Therapy

### **Rationale**

The Core 40 Science Committee carefully considered the course descriptions and standards for all computer science courses. Because of the lack of focus on the natural world, the committee does not believe that computer science is a pure form of science. However, the committee recognizes that computer science courses require a level of inquiry and experimentation that models scientific inquiry, and therefore reached consensus on the inclusion of the courses listed. An effort was made to ensure that each course contained a level of rigor necessary for college and career preparation, as well as modeled scientific principles, even within the technological world. Additionally, higher education institutions were consulted with regards to their admissions policies, and how the inclusion of computer science might impact students. While requirements still vary by institution, the response was largely positive, indicating no negative impact on admissions.

The committee also considered all courses that satisfy an approved CTE Pathway. Courses chosen demonstrated through the published standards that they contained significant science content, modeled the scientific principles of inquiry and experimentation, and contained a level of rigor necessary for college and career preparation. Courses that did not make this list did not

have standards that demonstrated significant scientific content. While the committee recognizes that courses may be taught with more or less science, depending on the teacher, the consensus was that the standards had to dictate the decision of the committee. For example, Health Science Education II: Physical Therapy has a preponderance of standards that require science and inquiry. In contrast, Health Science Education II: Pharmacy standards had a greater focus on employability skills, interacting with patients and doctors, maintaining records, and dispensing medications.

The committee recommends that the list of approved courses be evaluated on a regular basis, as new courses are added or standards are changed.

### **Committee Members**

Barkman, Kim	Agriculture	Beech Grove High School
Bennett, Rich	Biology	University of Southern Indiana
Bruck, Aaron	Chemistry	Vincennes University
Campbell, Nancy	CTE Director	Prosser Career Education Center
Ernest, Byron	SBOE	State Board Member
Finkler, Michael	Physiology	Indiana University - Kokomo
Flewelling, Jerome	Physics	Crown Point Community Schools
Fritz, Vanessa	Biology	Ivy Tech Community College
Hanson, James	PLTW Engineering	Walker Career Center
Harkness, John	Physics	West Washington High School
Harl, Anthony	IDOE	Career Education Specialist
Haubold, Kristen	PLTW Computer Science	South Bend Community Schools
Hoover, Gregg	Superintendent	Benton Community School Corporation
Jensen, Jennifer	IDOE	Assistant Director, Curriculum & Instruction
Kielmovitch, Alicia	SBOE	Director of Policy & Legislation
King, Robin	PLTW Health	Central Nine Career Center
Koressel, Jacob	IDOE	Computer Science Specialist
Lambert, Tari	CHE	TransferIN
Lane, Kathryn	Biology	Brown County High School
McCaw, Betsy	Industry	Central Indiana Corporate Sponsorship
McGregor, Reginald	Industry	Rolls Royce
Reck, Catherine	Chemistry	Indiana University - Bloomington
Sauer, Ken	CHE	Chief Academic Officer
Scherwinski, Ashlee	K-12 Science Coach	Indianapolis Public Schools
Seung, Elsun	Chemistry	Indiana State University
Smitha, Kandy	CTE - Health	J. Everett Light Career Center
Terry, Kim	Biology	South Vermillion High School
Vogelsang, Keith	Earth Science	Ivy Tech Community College
White, Lori	Chemistry	Cascade High School
Williams, Craig	Physics	Northwestern High School

**AMENDMENT #2**  
**CONTRACT #0000000000000000000026238**

This is an Amendment to the Contract (the "Contract") entered into by and between the Indiana Department of Education (the "State") and NEXTECH.ORG INC. (the "Contractor") approved by the last State signatory on May 10, 2018.

In consideration of the mutual undertakings and covenants hereinafter set forth, the parties agree as follows:

The Contract is hereby extended for an additional period of thirty days. It shall terminate on **July 31, 2019**.

No additional consideration is being added to the Contract. Total remuneration under the Contract is not to exceed **\$670,000**.

The purpose of this Amendment is to delete **Exhibit B** of Amendment #1 in its entirety and replace with **Exhibit C**, attached and fully incorporated by reference.

The Contract is amended by the following:

**1. Duties of Contractor.**

Paragraph 1. relating to Duties of Contractor, is hereby modified by addition of the following:

The Contractor will perform duties set forth in **Exhibit A** of the original contract and **Exhibit C**, attached and fully incorporated by reference.

**3. Term.**

Paragraph 3. relating to Term, is hereby deleted in its entirety and replaced with the following:

This Contract shall commence on **June 1, 2018** and shall remain in effect through **July 31, 2019**.

**33. Notice to Parties.**

Paragraph 33. relating to Notice of Parties, is hereby modified as follows:

Notices to the State shall be sent to:

Laycee Bruner, Executive Assistant  
Indiana Department of Education  
115 W. Washington Street  
South Tower, Suite 600  
Indianapolis, IN 46204

**36. Payments.**

Paragraph 36. relating to Payments, Item "E" is being modified as follows:

E. Payments shall not exceed \$670,000 for the period of June 1, 2018 through July 31, 2019.

**Funding Summary**

June 1, 2018 through July 31, 2019 (Original Contract)	\$ 70,000
June 1, 2018 through July 31, 2019 (Amendment #1)	\$600,000
June 1, 2018 through July 31, 2019 (Amendment #2)	\$ <u>0</u>

Total remuneration under this Contract shall not exceed \$670,000.

**50. State Boilerplate Affirmation Clause.**

Paragraph 50. Relating to State Boilerplate Affirmation Clause, is hereby modified by addition of the following:

**33. Notice to Parties.** (Modified)

**36. Payments.** (Item "E" modified)

**All matters set forth in the original Contract and Amendment #1 and not affected by this Amendment shall remain in full force and effect.**



### Non-Collusion and Acceptance

The undersigned attests, subject to the penalties for perjury, that the undersigned is the Contractor, or that the undersigned is the properly authorized representative, agent, member or officer of the Contractor. Further, to the undersigned's knowledge, neither the undersigned nor any other member, employee, representative, agent or officer of the Contractor, directly or indirectly, has entered into or been offered any sum of money or other consideration for the execution of this Amendment other than that which appears upon the face hereof. **Furthermore, if the undersigned has knowledge that a state officer, employee, or special state appointee, as those terms are defined in IC § 4-2-6-1, has a financial interest in the Contract, the Contractor attests to compliance with the disclosure requirements in IC § 4-2-6-10.5.**

### Agreement to Use Electronic Signatures

I agree, and it is my intent, to sign this Contract by accessing State of Indiana Supplier Portal using the secure password assigned to me and by electronically submitting this Contract to the State of Indiana. I understand that my signing and submitting this Contract in this fashion is the legal equivalent of having placed my handwritten signature on the submitted Contract and this affirmation. I understand and agree that by electronically signing and submitting this Contract in this fashion I am affirming to the truth of the information contained therein. I understand that this Contract will not become binding on the State until it has been approved by the Department of Administration, the State Budget Agency, and the Office of the Attorney General, which approvals will be posted on the Active Contracts Database:

[https://hr.gmis.in.gov/psp/paprd/EMPLOYEE/EMPL/h/?tab=PAPP\\_GUEST](https://hr.gmis.in.gov/psp/paprd/EMPLOYEE/EMPL/h/?tab=PAPP_GUEST)

**In Witness Whereof**, Contractor and the State have, through their duly authorized representatives, entered into this Amendment. The parties, having read and understood the foregoing terms of this Amendment, do by their respective signatures dated below agree to the terms thereof.

NEXTECH.ORG INC.

Indiana Department of Education

By: 

By: Tracy Brown for Dr. Jennifer McCormick

Title: **President**

Title: *Chief Financial Officer*

Date: **April 9, 2019**

Date: *April 10, 2019*

Electronically Approved by: Department of Administration  By: _____ (for) Lesley A. Crane, Commissioner <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>	
Electronically Approved by: State Budget Agency  By: _____ (for) Jason D.Dudich, Director <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>	Electronically Approved as to Form and Legality: Office of the Attorney General  By: _____ (for) Curtis T. Hill, Jr., Attorney General <i>Refer to Electronic Approval History found after the final page of the Executed Contract for details.</i>

## Exhibit C

### SOW Narrative - March 2019 Amendment (Bold Indicates New)

During the summer of 2018 as part of the Pathfinders Summer Institute, Nextech organized week-long, intensive professional development experiences in Computer Science Discoveries (CSD) and Computer Science Principles (CSP). CSP had two cohorts and each cohort required two facilitators. CSD also had two cohorts and each cohort required two facilitators. As part of the CSP and CSD cohorts, Nextech will provide two Saturday workshops each quarter during the school year to serve as embedded professional development for cohort participants. Participants will attend one Saturday workshop each quarter. Two facilitators per workshop are required. Each CSP cohort member will be provided with one CSP curriculum guide, one CSP lesson planning packet, one College Board AP CSP Course and Exam Description, and Code.org posters. Each CSD cohort member will be provided with one deck of cards, one CSD curriculum guide, one CSD lesson planning packet, and Code.org posters. CSP cohorts will impact a total of 44 public school teachers, while CSD cohorts will impact a total of 60 public school teachers. Eight total workshop days are expected to be devoted to CSP and CSD across the school year.

Nextech will also organize and promote Computer Science Fundamentals workshops for a minimum of 300 public school teachers (beyond the 220 trained during the summer of 2018) by June 30, 2019. The guidelines for CSF workshops are as follows:

- A minimum of 12 participants is required to conduct a workshop.
- Workshops with less than or equal to 15 participants will only receive reimbursement for one facilitator.
- Each workshop participant will receive one CSF curriculum guide.
- Sub reimbursements will be provided to public school districts that send teachers to workshops that take place during school hours.

A middle school computer science workshop is currently in development and will be offered 10 times by June 30, 2019. The goals of the workshop include preparing middle school teachers to integrate computer science into their curriculum, as well as to meet minimum assessment requirements. The guidelines for middle school workshops are as follows:

- A minimum of 12 participants is required to conduct a workshop.
- Workshops with less than or equal to 15 participants will only receive reimbursement for one facilitator.
- Materials provided to workshop participants will be determined upon the conclusion of workshop development.
- Sub reimbursements will be provided to public school districts that send teachers to workshops that take place during school hours.

Nextech will organize and offer a minimum of 4 SCRIPT workshops by June 30, 2019. The guidelines for SCRIPT workshops are as follows:

- A minimum of 12 participants (four district teams of three) is required to conduct a workshop.

- Workshops will be led by one paid facilitator and one Nextech staff member.
- Three of the workshops should cater to the three regions where ESC leadership did not attend the SCRIPT facilitator workshop in July 2018 (Wilson Education Center, Wabash Valley Education Center, and Northwest Indiana Education Center). The fourth workshop should be offered in the Indianapolis area.
- Additional workshops may be added on an as-needed basis as mutually determined by IDOE and Nextech.

There is flexibility in the number of participants and the format of SCRIPT workshops, however, workshops should effectively meet the needs of participating districts and be deemed fiscally responsible by IDOE. IDOE prefers a minimum of five district teams be present at each SCRIPT workshop.

**Nextech will organize and offer Cybersecurity Professional Development Workshops in June and July 2019. These 3-day workshops will cover the 7 cybersecurity topics found in Derek Babb's Cybersecurity Course (Ethics and Society, Security Principles, Classic Cryptography, Modern Cryptography, Malicious Software, Physical Security, Web Security) while also learning how to navigate GitHub and the provided curriculum and related resources. On the final day of the workshop, educators will be invited to some of Indianapolis's top security companies to experience and witness first-hand what goes on in the industry on a day-to-day basis. Participating teachers will receive a stipend of \$25/hour for up to 19 hours.**

**Nextech will organize and offer a Java Professional Development Workshop in June or July 2019. Java is among the most popular programming languages out there, mainly because of how versatile and compatible it is. Java can be used for a large number of things, including software development, mobile applications, and large systems development. Designed for those teaching AP Computer Science A, this 4-day workshop will cover the basics of object-oriented programming (OOP) with a focus on problem-solving and algorithm development. Participants will study key concepts including abstraction, encapsulation, inheritance, and polymorphism. Participating teachers will receive a stipend of \$25/hour for up to 28 hours.**

**Nextech will organize a series of microexperiences for educators. These experiences will help computer science teachers make connections between industry and the work they are doing in the classroom in an effort to enhance the learning experiences they provide to their students. Participating teachers will be provided a stipend of \$25/hour for up to 7 hours.**

For all workshops, priority should be given to teachers of public schools and public charters, as well as teachers at schools with no existing computer science programs. Marketing strategies should be developed in consultation with appropriate Indiana Department of Education staff and should include broad advertisement at least one month prior to each event. Following the

registration period, targeted, strategic reminders and informational updates should be sent to participants and school districts. Facilitators are compensated \$500 per day for all workshops. All workshops should be completed by June 30, 2019, and Nextech staffing costs for these workshops should not exceed \$125,397.64 (an updated proposal can be submitted and will be considered by IDOE) based on the following allocations (detailed responsibilities included):

- Fully Allocated Program Manager
  - Identify and onboard partner schools, districts, and other organizations
  - Design and deliver all professional development workshops for elementary, middle and high school teachers
  - Serve as primary contact for all teachers that have / are participating in Nextech's K-12 professional development programs
  - Create a teacher community that persists beyond professional development experiences
  - Manage contracted content facilitators
  - Facilitate workshops to educate middle and high school guidance counselors / administrators on postsecondary pathways in technology
  - Summarize and report teacher proficiency and student mastery of academic content
  - Maintain relationships with key stakeholders in the advancement of K-12 Computer Science in Indiana
  - Lead processes to identify new curriculum and professional providers that will significantly grow our portfolio of classroom solutions for K-12 CS educators
  - Other project-related responsibilities as determined by IDOE in collaboration with the provider
- 40-50% Allocated Marketing Associate
  - Craft and execute content marketing strategy to recruit participants in professional development programs
- 15% Allocated Operations Associate
  - Coordinate details for professional development workshops
  - Process all paperwork regarding stipend payments
  - Serve as onsite staff for select workshops
- 15% Allocated President
  - Assist in the recruitment of curriculum partners and implementation resources
  - Maintain executive level relationship with curriculum providers and funding partners
  - Execute all development activities to raise funds to support professional development activities
  - Monitor and report on financial activity specific to professional development activities

On a monthly basis, Nextech staff members with at least 40% allocation to the activities listed above will meet with the Computer Science Specialist at the Indiana Department of Education. These meetings will be scheduled by the Computer Science Specialist and should include

updates from Nextech on the number of teachers trained, upcoming events and accompanying training projections, detailed expense summaries, applicable invoices for the prior month, as well as any other items as deemed necessary by the Indiana Department of Education or Nextech. Additionally, Nextech should submit an updated budget forecast to IDOE six months after the start of the contract and every six months thereafter, as long as Nextech is under contract with IDOE.

Line Item (Bold Indicates New Line)	Expenses as of 2/15/19	Expenses Invoiced 3/15	Available Projected Expenses Invoiced 4/15	Projected Additional Expenses	Amended Budget Allocation
CSF Workshops	\$67,067.62	\$5,838.34	\$5,838.34	\$25,981.86	\$104,726.16
CSF Sub Reimbursement	\$769.09	\$560.87	\$1,271.66	\$3,225.00	\$5,826.62
SCRIPT TTT @ PF Summit	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
SCRIPT Training	\$15,154.84	\$4,471.92	\$5,093.02	\$0.00	\$24,719.78
Computer Science Principles	\$113,944.69	\$2,425.19	\$1,208.75	\$14,865.31	\$132,443.94
Computer Science Discoveries	\$127,272.80	\$2,575.19	\$1,208.68	\$16,665.31	\$147,721.98
Middle School 2-Day Development	\$6,950.00	\$0.00	\$0.00	\$0.00	\$6,950.00
Middle School 2-Day	\$10,434.48	\$1,614.86	\$9,440.72	\$1,685.67	\$23,175.73
MS 2-Day Sub Reimbursement	\$2,523.93	\$442.18	\$2,869.20	\$1,935.00	\$7,770.31
Program Management and Marketing	\$80,745.31	\$17,171.12	\$0.00	\$69,304.49	\$167,220.92
<b>Cybersecurity Workshop</b>	\$0.00	\$0.00	\$0.00	\$24,284.56	\$24,284.56
<b>Java Workshop</b>	\$0.00	\$0.00	\$0.00	\$23,060.00	\$23,060.00
<b>Teacher Microexperiences</b>	\$0.00	\$0.00	\$0.00	\$2,100.00	\$2,100.00
Total	\$424,862.76	\$35,099.67	\$26,930.37	\$183,107.20	\$670,000.00

*Developed By the  
Indiana Department of Education  
in Collaboration with the  
Indiana STEM Council*

# Indiana STEM Playbook

2019–2025

## A Note From Superintendent McCormick



On behalf of the Indiana Department of Education, it is my pleasure to share the [STEM Six-Year Strategic Plan](#) and this complementary STEM Playbook. These bodies of work are fueled by the values of equitable education, rigorous curriculum and instruction, professional development for educators, and partnerships.

The STEM Six-Year Strategic Plan goals include educator training for problem-based instruction, implementation of integrated, evidenced-based STEM curriculum, and the development of business and industry partnerships.

We are proud of the collaborative work that has led to Indiana's STEM advancement. Indiana promises to be a national leader in this space.

Sincerely,

Dr. Jennifer McCormick



### **Our Vision**

**All Indiana students in grades K–12 will graduate with critical thinking skills and be prepared for an innovation-driven economy by accessing quality, world class STEM education every day in the classroom by 2025.**



### **Our Mission**

**Ensure Indiana teachers are prepared to provide every student in grades K–12 with an evidence-based, effective STEM education by 2025.**







## Accomplishments



### STEM Acceleration Grants

Round	School Districts	Schools	Students	Counties	Total
1	11	60	24,917	11	\$910,000

Round	School Districts	Schools	Students	Counties	Total
2	14	29	30,068	12	\$546,469



### STEM Certified Schools

Cohort 5  
18 Schools Certified

To Date  
78 Schools Certified



## Accomplishments



INDIANA DEPARTMENT OF EDUCATION



### Computer Science

50% of High Schools  
Offered CS During  
SY 2018-2019

14,159  
Course Completions

K-12 Teachers  
Trained Since  
June 2018  
1,393

Third State to  
Implement all  
Code.org Advocacy  
Coalition Policy  
Recommendations

### Cybersecurity Grants for PLTW Curriculum and Training



Round	Schools	Students	Counties	Total
1	7	32,746	7	\$51,800

Round	Schools	Students	Counties	Total
2	48	366,125	37	\$348,000

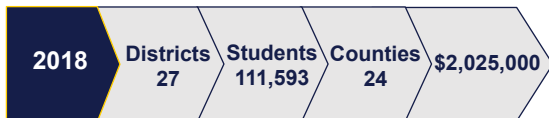




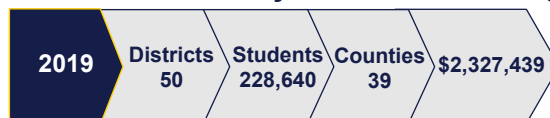
## Accomplishments



### Grants - STEM Curriculum



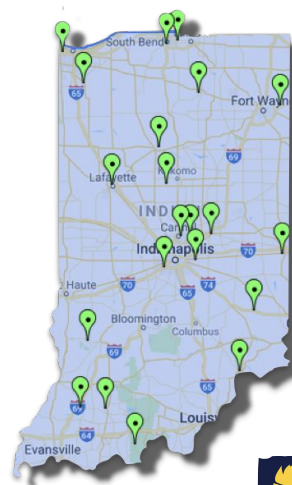
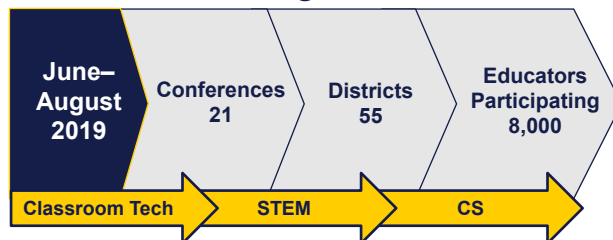
### Grants - STEM Project-Based Learning Training



## Accomplishments



### Summer of eLearning

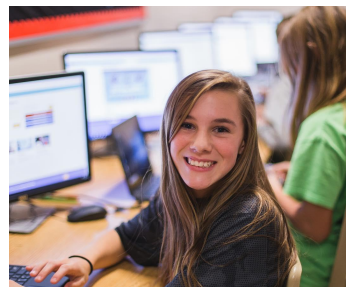
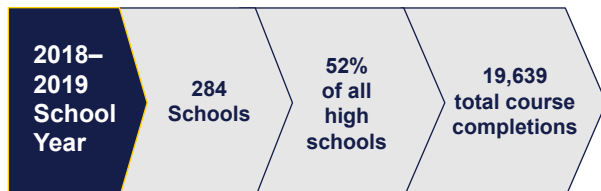




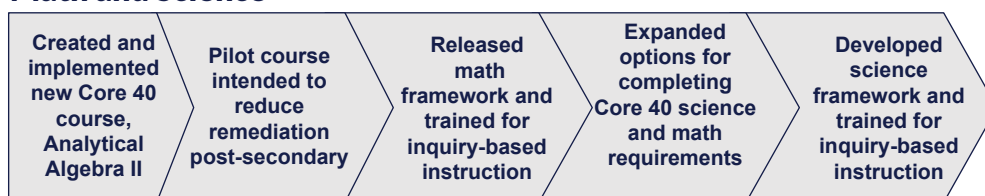
## Accomplishments



### Engineering



### Math and Science



## Strategic Objectives



### Improve STEM Instruction

100% of Indiana K–12 teachers will be trained in problem-based, project-based, and inquiry-based approaches to learning by 2025.

### Scale Evidence-Based STEM Curriculum in Classrooms

100% of Indiana schools will implement integrated, evidence-based STEM curriculum by 2025.

### Foster Early STEM Career Exposure

100% of Indiana K–12 schools will create and sustain robust STEM related business and industry partnerships in order to inform curriculum, instruction, and student experiences to foster college and career readiness.



## Improve STEM Instruction



**Recommendation One:** Prepare pre-service and in-service educators with evidence-based critical thinking and vetted problem/project/inquiry-based approaches to learning.



**Identify and train 300 K–12 teachers to become project-based learning (PBL) trainers by June 2021.**

**Status:** First cohort of 100 trained July 15–17, 2019



**Next Steps:**

- Registration for second cohort opens January 2020.
- Second cohort of 100 educators attend training June 16–June 18, 2020.

**Provide awareness and training opportunities for building-level and district-level K–12 educators by June 2021.**

**Status:** Playbook shared during Superintendent Summit 2019.



**Next Steps:**

- Offer Digital Learning/Community Advisory Grant in December 2019.
- Host a series of rebranded summer conferences.



## Improve STEM Instruction



**Recommendation One:** Prepare pre-service and in-service educators with evidence-based critical thinking and vetted problem/project/inquiry-based approaches to learning.



**Launch rebranded and re-envisioned Summer Conference Series.**

**Status:** Held summer conference committee meeting.



**Next Steps:**

- Plan a series of rebranded summer conferences.
- Convene summer 2020 conference series.

**Provide best-practice information to the field on high-quality eLearning Days.**

**Status:** Developed resources and hosted webinar.



**Next Steps:**

- Schedule regional professional development.
- Identify districts as best-practice models.



## Improve STEM Instruction



**Recommendation One:** Prepare pre-service and in-service educators with evidence-based critical thinking and vetted problem/project/inquiry-based approaches to learning.



Provide professional learning opportunities and resources to enhance instructional effectiveness and to support STEM and digital integration.

**Status:** Developed a weekly twitter chat using #INedchat.



**Next Steps:**

- Continue to monitor technology via Indiana Tech Plans.
- Continue to develop content for twitter chats.

**Next Steps (continued):**

- Develop a statewide professional learning series on high-quality digital and blended learning instructional practices to be delivered to educators.
- Develop high-quality digital integration and 1:1 integration resources to be shared.
- Distribute 100% of Digital Learning/Community Advisory Grants with a focus on STEM Plan and digital learning opportunities.



## Improve STEM Instruction



**Recommendation One:** Prepare pre-service and in-service educators with evidence-based critical thinking and vetted problem/project/inquiry-based approaches to learning.



Partner with higher education institutions to ensure project-based learning (PBL) is embedded in teacher preparatory programs by June 2021.

**Status:** Shared during meetings with EPP partners.



**Next Steps:**

- Develop PBL EPP training proposal and identify training provider.

Identify and train at least 2,800 K-12 teachers in computer science, including cybersecurity content, by June 2021.

**Status:** 1,063 teachers trained to date.



**Next Steps:**

- Finalize RFP contracts with selected training providers.
- Market training dates, times, and locations.





## Improve STEM Instruction



**Recommendation Two:** Implement strategies and activities to recruit and retain high-quality STEM proficient and STEM-trained educators.



**Develop a model of 'best practice' to embed project-based learning into EPP pedagogy.**

**Status:** Multiple Grow Your Own (GYO) Cadre meetings held with K-12 and Higher Education.



**Next Steps:**

- Determine alignment to GYO strategies.

**EPPs will have at least one pathway for P-12 students and one pathway for adults responsive to partner LEA needs and resulting in an increase in EPP enrollment.**

**Status:** Developed a Grow Your Own Playbook. [Link](#)



**Next Steps:**

- EPPs and LEAs identify point person for project (partnership) and secure formal approval from their respective leadership or governance boards.



## Improve STEM Instruction



**Recommendation Two:** Implement strategies and activities to recruit and retain high-quality STEM proficient and STEM-trained educators.



**Create awareness of existing licensing options and flexibility (including Computer Science and Cyber).**

**Status:** Licensing document updated.



**New Goal Development:**

- Establish EPP community of practice to develop strategies for computer science integration into preservice programs.

**Increase STEM Cadre membership to enhance collaboration and to enable practitioners to provide consistent input on the STEM Playbook.**

**Status:** Cadre membership has increased from 13 to 20.



**Next Steps:**

- STEM Cadre will contribute to development of Indiana STEM Week plan for fall of 2020.



## Scale Evidence-Based STEM Curriculum in Classrooms



**Recommendation One:** Provide resources to schools to implement integrated, evidence-based STEM curriculum in classrooms with the emphasis on K-8 learning environments.



STEM Innovations, LLC will create a vetted list of high-quality STEM curriculum.

**Status:** Complete and posted on September 27, 2019. [Link](#)



**New Goal Development:**

- Determine system of ongoing additions to vetted list.
- Determine percentage of schools implementing curriculum from vetted list.

Develop database to identify those schools that have implemented an evidence-based STEM curriculum.

**Status:** Survey sent to all Superintendents and Principals.



**Next Steps:**

- Review final report from STEM Innovations, LLC.



## Scale Evidence-Based STEM Curriculum in Classrooms



**Recommendation One:** Provide resources to schools to implement integrated, evidence-based STEM curriculum in classrooms with the emphasis on K-8 learning environments.



Publish a list of Computer Science and Cyber curriculum providers and resources.

**Status:** Complete and posted on July 6, 2019. [Link](#)



**New Goal Development:**

- Conduct a series of regional professional development opportunities on K-5 Computer Science Framework.

Continue to offer STEM Acceleration Grant opportunities providing equity and access.

**Status:** Complete and posted on September 27, 2019. [Link](#)



**New Goal Development:**

- Distribute 100% of STEM Acceleration Grant funds by December 2020.



## Scale Evidence-Based STEM Curriculum in Classrooms



**Recommendation One:** Provide resources to schools to implement integrated, evidence-based STEM curriculum in classrooms with the emphasis on K–8 learning environments.



Update STEM Acceleration Grant process to require use of a state-vetted curriculum.

**Status:** Complete and posted on September 27, 2019. [Link](#)



**New Goal Development:**

- Distribute 100% of STEM Acceleration Grant funds by December 2020.



## Scale Evidence-Based STEM Curriculum in Classrooms



**Recommendation Two:** Evaluate processes and incentives for STEM certified schools.



Review and modify STEM certification process.

**Status:** Complete and posted on July 26, 2019. [Link](#)



**New Goal Development:**

- Provide a regional professional development series focused on STEM school certification.

Determine an advanced level STEM certification that allows for schools to become models.

**Status:** Beginning stages of draft development



**Next Steps:**

- Convene group of STEM certified school leaders to develop meaningful incentives and requirements for “model” status.





## Scale Evidence-Based STEM Curriculum in Classrooms



**Recommendation Two:** Evaluate processes and incentives for STEM certified schools.



Develop a tool to incentivize STEM certification attainment.

**Status:** Beginning stages of draft development



**Next Steps:**

- Convene group of STEM Certified school leaders to develop meaningful incentives and requirements for “model” status.



## Foster Early STEM Career Exposure



**Recommendation One:** Provide a roadmap to educators showing how STEM integration ensures students receive career exploration (K–8) and career readiness opportunities (9–12).



Support STEM-related co-curricular and extracurricular programs (robotics, Cyber Patriots, CTSOs, eSports, etc.)

**Status:** Funding provided to continue robotics grants.



**Next Steps:**

- Support launch of statewide eSports tournament.
- Provide awareness to schools regarding eSports and computer science-related events.

Develop a middle school career exploration guide by March 2020.

**Status:** Planning stages.



**Next Steps:**

- Research and compile current resources and best practices.



## Foster Early STEM Career Exposure



**Recommendation Two:** Support schools as they coordinate with business, industry, and post-secondary partners to design extended learning opportunities linked to STEM careers.



Facilitate a planning grant process to promote the formation of community/regional advisory groups that will develop comprehensive, system-wide curriculum implementation and STEM-based programs of study.

**Status:** Shifted focus to incorporate Technology Integration.



**Next Steps:**

- Launch Digital Learning/Community Advisory Grant December 2019.
- Award planning grants March 2020.

Work with state agencies to ensure alignment of efforts (i.e., Governor's Workforce Cabinet, Office of Career Connections and Talent, Office of Work Based Learning and Apprenticeship, etc.).

**Status:** Meeting regularly with GWC, DWD, OWBLA, and Office of Career Connections and Talent.

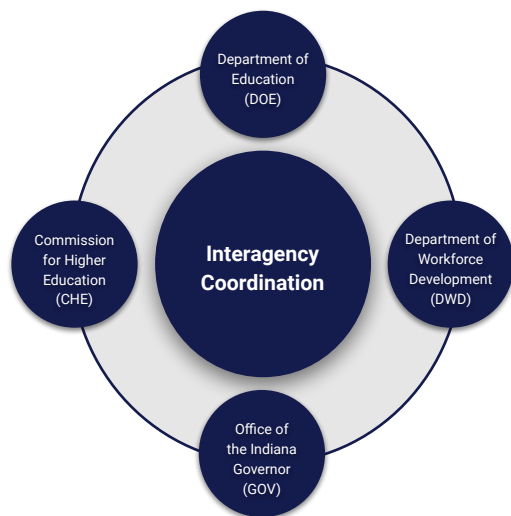


**Next Steps:**

- Pilot work-based learning state training March 2020.
- Co-facilitate regional work-based learning state trainings Fall 2020.



## Indiana Department of Education STEM Council Members



**Members Include Representatives From**

Indiana Educators of STEM Content  
 Indiana Department of Education  
 Office of the Indiana Governor  
 Indiana Department of Workforce Development  
 Indiana Commission for Higher Education  
 Indiana State Board of Education  
 Indiana House of Representatives  
 Indiana Senate  
 Indiana Economic Development Corporation  
 Indiana State Teachers Association  
 Indiana Chamber of Commerce  
 American Federation of Teachers  
 Central Indiana Corporate Partnership  
 Rolls Royce  
 Lilly Foundation  
 OrthoWorx  
 Mead Johnson Nutrition  
 Duke Energy  
 Cummins  
 Fairbanks Foundation  
 Ivy Tech Community College  
 Purdue University





## Indiana Department of Education STEM Cadre Members



### Cadre Members

Tracy Ballinger  
 Melissa Bardack  
 Justin Earl  
 Dr. Chris Edwards  
 Jerome Flewelling  
 Ralph Gee  
 Tim Hanson  
 Carolyn Hayes  
 Sara Hoover  
 Jared Knipper  
 Kris McAloon  
 Matthew Modlin  
 Kyle Mullins  
 Lisa Roberts  
 Justin Smith  
 Katy Sparks  
 Shelly Sparrow  
 Brian Wagaman  
 Mike Wells

Plainfield  
 Center Grove  
 Jennings County  
 HSE  
 Crown Point  
 Michigan City  
 MSD of Warren Township  
 HASTI  
 Mishawaka  
 Central Noble  
 MSD of Lawrence Township  
 South Bend  
 Scott County School District 2  
 Monroe County  
 MSD of Pike Township  
 Monroe County  
 Mishawaka  
 Sullivan  
 Munster



## Indiana Department of Education STEM Contacts



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Visit Our Website  
<https://www.doe.in.gov/wf-stem>





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## Updated Computer Science Assignment Codes

The table below outlines the recently-updated Indiana Assignment Codes for Computer Science courses. These were updated to give schools additional flexibility in their implementation of computer science and identifying those who will teach computer science. Updates are highlighted in yellow.

Assignment Codes					
Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
<b>0488</b>	Middle Level Computer Science	<ul style="list-style-type: none"> <li>• Business Education 7-12</li> <li>• Any license with middle school grade level coverage with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business Education 9-12</li> <li>• Business Education with Vocational Endorsement 9-12</li> <li>• Any license with middle school grade level coverage with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business with high school setting</li> <li>• Computer Education with high school setting</li> <li>• Any license with middle school grade level coverage with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Computer Education 5-12, P-12</li> <li>• Computer Science 5-12, P-12</li> <li>• Business 5-12</li> <li>• CTE: Business Services &amp; Technology 5-12</li> <li>• CTE: Business &amp; Information Technology 5-12</li> <li>• Any license with middle school grade level coverage with Professional Development or additional training in Computer Science</li> </ul>
<b>4570</b>	AP Computer Science A	<ul style="list-style-type: none"> <li>• Business Education 7-12</li> <li>• Industrial Arts, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business Education 9-12</li> <li>• Business Education with Vocational Endorsement 9-12</li> <li>• Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>• Industrial Technology/Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Business with high school setting</li> <li>• Computer Education with high school setting</li> <li>• CTE: Business Services &amp; Technology with high school setting</li> <li>• Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>• Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Computer Education 5-12, P-12</li> <li>• Computer Science 5-12, P-12</li> <li>• Business 5-12</li> <li>• CTE: Business Services &amp; Technology 5-12</li> <li>• CTE: Business &amp; Information Technology 5-12</li> <li>• Workplace Specialist: Computer Science 9-12</li> <li>• Workplace Specialist: Programming 9-12</li> <li>• Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>



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Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
4568	AP Computer Science Principles	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Industrial Arts, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Industrial Technology/Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Programming 9-12</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>
4584	IB Computer Science, Higher Level	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Industrial Arts, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Industrial Technology/Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Programming 9-12</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>



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Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
4586	IB Computer Science, Standard Level	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Industrial Arts, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Industrial Technology/Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Programming 9-12</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>
8116	Cambridge International A Level Computer Science	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Industrial Arts, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Industrial Technology/Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Programming 9-12</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>



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Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
8118	Cambridge International AS Level Computer Science	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Industrial Arts, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Industrial Technology/Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Programming 9-12</li> <li>Technology Education, Math, or Science with Professional Development or additional training in Computer Science</li> </ul>
4803	Introduction to Computer Science	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Occupational Specialist in "Computer Science" related course approved for a CTE pathway</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Workplace Specialist in "Computer Science" related course approved for a CTE pathway</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist in related "Computer Science" course approved for a CTE pathway</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>
4801	Computer Science I	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>





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Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
5236	Computer Science II	<ul style="list-style-type: none"> <li>Business Education 7-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Programming 9-12</li> <li>Math or Science with Professional Development or additional training in Computer Science</li> </ul>
5252	Computer Science III: Special Topics	Must have an approved Non-Standard Course Waiver to use this course. Licensing is determined during the waiver process.			
5253	Computer Science III: Cybersecurity	<ul style="list-style-type: none"> <li>Business Education 7-12</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming and Software Development 9-12</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Information Support &amp; Services</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business &amp; Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Cybersecurity 9-12</li> </ul>
5250	Computer Science III: Databases	<ul style="list-style-type: none"> <li>Business Education 7-12</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development &amp; Network Systems</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business and Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Networking 9-12</li> <li>Workplace Specialist: Info and Technology: Program &amp; Software Development 9-12</li> </ul>



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Code	Course Title	Bulletin 400	Rules 46-47	Rules 2002	REPA/REPA 3
5251	Computer Science III: Informatics	<ul style="list-style-type: none"> <li>Business Education 7- 12</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Computer Operations &amp; Programming: Management Info Systems</li> <li>Workplace Specialist: Information Technology: Information Support &amp; Services</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business and Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Information Technology: Information Support &amp; Services 9-12</li> </ul>
5249	Computer Science III: Software Development	<ul style="list-style-type: none"> <li>Business Education 7- 12</li> </ul>	<ul style="list-style-type: none"> <li>Business Education 9-12</li> <li>Business Education with Vocational Endorsement 9-12</li> <li>Occupational Specialist: Business IT: Programming &amp; Software Development 9-12</li> </ul>	<ul style="list-style-type: none"> <li>Business with high school setting</li> <li>Computer Education with high school setting</li> <li>CTE: Business Services &amp; Technology with high school setting</li> <li>Workplace Specialist: Business IT: Programming &amp; Software Development</li> </ul>	<ul style="list-style-type: none"> <li>Computer Education 5-12, P-12</li> <li>Computer Science 5-12, P-12</li> <li>Business 5-12</li> <li>CTE: Business Services &amp; Technology 5-12</li> <li>CTE: Business and Information Technology 5-12</li> <li>Workplace Specialist: Computer Science 9-12</li> <li>Workplace Specialist: Info Technology: Programming &amp; Software Development 9-12</li> <li>Workplace Specialist: Programming 9-12</li> </ul>



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To: Superintendents, Principals, CTE Directors

From: Jake Koressel, Computer Science Specialist  
Dr. Andrew Melin, Chief Innovation Officer

Date: May 3, 2019

Subject: IC 20-30-5-23 - Computer Science Education

### Background - IC 20-30-5-23

- a) After June 30, 2021, each public high school, including each charter school, shall offer at least one (1) computer science course as a one (1) semester elective in the public high school's curriculum at least once each school year for high school students.
- b) After June 30, 2021, each public school, including each charter school, shall include computer science in the public school's curriculum for students in kindergarten through grade 12.

### Guidance

The following are guidance items in support of section (a):

### Computer Science Courses

A complete list of high school courses that satisfy the requirements of SEA 172, as well as high school course standards, can be found [here](#). Detailed course descriptions can be found [here](#).

### Advanced Placement (AP) and CTE

There are currently two AP course offerings in computer science: AP Computer Science Principles and AP Computer Science A. Specific information about these courses can be found [here](#). Additionally, a variety of computer science courses qualify for CTE state funding. More information on computer science courses that qualify for CTE state funding can be found [here](#).

### Teacher Licensure

Although computer science courses must be taught by an appropriately licensed teacher, licensure requirements vary by course and grade level. Details can be found in the [Indiana Assignment Code](#). Various licensing options are available including: [computer education license addition](#), computer science license addition, [career specialist license](#), and [workplace specialist license](#).



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The following are guidance items in support of section (b):

### Computer Science Standards

Computer science standards for grade bands K-2, 3-5, and 6-8 were adopted by the State Board of Education in 2016. Please visit <https://www.doe.in.gov/wf-stem/computer-science> for more information regarding Indiana computer science standards.

### 0488 Computer Science - Middle Level

0488 Computer Science - Middle Level is now available for middle schools wishing to offer a standalone computer science course for students. The course framework can be found [here](#). All 6-8 grade band standards are included, as well as additional topics.

### Assessment

The Indiana K-8 computer science standards are housed as part of the Indiana science standards and will be assessed on grades 4 and 6 ILEARN science assessments beginning in the 2018-2019 school year. For assessment blueprints, please visit <https://www.doe.in.gov/assessment/ilearn-test-design>. Click [here](#) to view item specifications.

*It is important to note that the Indiana K-8 computer science standards are not intended to replace the appropriate grade level science standards, but should be taught in addition to the science standards.*

Guidance in support of sections (a) and (b):

### Professional Development

A variety of computer science professional development opportunities are available to Indiana educators of all grade levels. For a list of these opportunities, please visit <https://www.doe.in.gov/wf-stem/cspd>. This list is continuously updated as new opportunities become available.

If you have any questions, please contact Jake Koressel, IDOE Computer Science Specialist, [jkoressel@doe.in.gov](mailto:jkoressel@doe.in.gov).



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## Computer Science Element of Updated STEM Certification Rubric

During the summer of 2019, the Indiana Department of Education (IDOE) worked to update the STEM Certified Schools program, including the process and evaluation rubric, to have strong alignment with IDOE's STEM Six-Year Strategic Plan, as well as other relevant priorities. The image below shows the inclusion of a rubric element dedicated specifically to computer science curriculum and implementation. This element has also been identified as an "Essential Element," meaning that any school wishing to become STEM certified must achieve "Innovating" status on this element.

Element	Domain 2: Curriculum				Element Score	Evidenced By: (Examples listed below. You may choose your own evidence to support your score).
	Investigating 0 points	Developing 1 point	Approaching 2 points	Innovating 3 points		
2.2 Computer Science	Does not yet meet minimum indicators for Developing	A computer science implementation plan has been developed that complies with IC 20-30-5-23	Elementary and Middle School: Standards-based computer science content is incorporated into the school curriculum for at least 50% of students  High School: At least 1 computer science course is available to students	Elementary and Middle School: Standards-based computer science content is incorporated into the school curriculum for 100% of students  High School: Multiple computer science courses are available to students		Implementation Plan Agendas from PD/Training Sessions Roster of Participants Course List/Guide

Curriculum Score:



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**Commitment-Making Organization:** Indiana Department of Education

**Image:**



**Title of Commitment:** State Computer Science Competition/Challenge

**Start Year:** 2019

**No. of Years for Commitment:** 1

**Group that will Directly Benefit from Commitment:** Students

**Number of Students Served:** approximately 1.2 million

**Brief Commitment Statement:**

The Indiana Department of Education will organize and promote a state-wide computer science competition/challenge by June 2020 available to all Indiana schools serving 1.2 million students.

**Detailed Description:**

As an action step in the implementation of Indiana's Six-Year STEM Strategic Plan, the Indiana Department of Education (IDOE) plans to develop and launch a state-wide competition and/or challenge directly related to computer science and/or cybersecurity. Upon the launch of the program, impact will be measured by the number of participating schools and students. Efforts will be made to make the competition/challenge accessible to students across a variety of grade-levels and regions of the state. Additional collaborators will be identified as needed.



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## Evidence-Based STEM Curriculum

Curriculum Provider	Grades	Organization	Vetted By
<a href="#">A World in Motion</a>	K-12	SAE International	STEMworks at WestEd
<a href="#">Amplify Science</a>	K-8	UC Berkeley's Lawrence Hall of Science	STEMworks at WestEd
<a href="#">Engineering is Elementary</a>	K-5	Museum of Science	STEM Innovations, LLC
<a href="#">EngrTEAMS</a>	4-8	Purdue University College of Engineering	STEM Innovations, LLC
<a href="#">Full Option Science System</a>	PK-8	University of California, Berkeley	STEMworks at WestEd
<a href="#">Making and Tinkering With STEM: Solving Design Challenges with Young Children</a>	Early Childhood	National Association for the Education of Young Children	STEM Innovations, LLC
<a href="#">Picture-Perfect STEM</a>	K-2	National Science Teachers Association	STEM Innovations, LLC
<a href="#">Picture-Perfect STEM</a>	3-5	National Science Teachers Association	STEM Innovations, LLC
<a href="#">PictureSTEM</a>	K-2	Purdue University College of Engineering	STEM Innovations, LLC
<a href="#">Project Lead the Way</a>	PK-12	PLTW	STEM Innovations, LLC
<a href="#">Save the Penguins</a>		Auburn University	STEM Innovations, LLC
<a href="#">SLED</a>	3-6	Purdue University College of Education	STEM Innovations, LLC
<a href="#">STEM Road Map</a>	K-12	National Science Teachers Association	STEM Innovations, LLC
<a href="#">The Science and Technology Concepts</a>	K-10	Smithsonian Science Education Center	STEMworks at WestEd





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## Computer Science Curriculum

Curriculum Provider	Grades
<a href="#">Apple</a>	K-12
<a href="#">Beauty and Joy of Computing</a>	9-12
<a href="#">BootUp</a>	K-8
<a href="#">CodeHS*</a>	6-12
<a href="#">Codelicious</a>	K-12
<a href="#">Codesters</a>	4-8
<a href="#">Code.org (Nextech)*</a>	K-12
<a href="#">C-STEM (UC Davis)</a>	K-12
<a href="#">Google CS First (Five-Star Technology)</a>	K-12
<a href="#">iDEW (IUPUI)*</a>	9-12
<a href="#">Indiana Computes!*</a>	K-12
<a href="#">Learning.com</a>	K-8
<a href="#">Mobile CSP</a>	8-12
<a href="#">National Integrated Cyber Education Research Center (NICERC)</a>	6-12
<a href="#">Project Lead The Way*</a>	K-12

**\*free teacher professional development available through funding provided by IDOE**



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## STEM and Computer Science Curriculum Showcase Agenda

Monday, October 21

Time	Room				
	Overlook	Woodland North	Woodland South	Delaware	Wapahani
9:00 AM	The Museum of Science   EiE	A World in Motion	Picture-Perfect STEM	Nextech (Code.org)	AP TIP-IN
9:30 AM	Break/Transition Time				
9:40 AM	Indiana Science Initiative	Making and Tinkering with STEM	Project Lead The Way	Codelicious	CodeHS
10:10 AM	Break/Transition Time				
10:20 AM	Full Option Science System (FOSS)	EngrTEAMS	TechPoint Foundation for Youth	Indiana Computes!	Five-Star Technology
10:50 AM	Break/Transition Time				
11:00 AM	Project Lead The Way	PictureSTEM	Amplify Science	iDEW	CodeHS
11:30 AM	<b>Lunch is on your own, however, the cafe at Conner Prairie will be open.</b> <b>Dr. Christy Hilton, IDOE STEM Specialist, will host a Q&amp;A about the STEM Acceleration Grant in Woodland North. Feel free to bring your lunch to this walk-in session and have your questions answered.</b> <b>The vendor hall will be open at this time, as well.</b>				

\*\*Please note that the Indiana Department of Education in no way endorses or specifically recommends any particular provider that is either being showcased at the STEM and Computer Science Curriculum Showcase or that has provided materials. The purpose of the event is simply to provide school corporations with better access to potential services and products from applicable providers.



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Time	Overlook	Woodland North	Woodland South	Delaware	Wapahani	Lilly Theatre
12:40 PM	The Museum of Science   EiE	Making and Tinkering with STEM	Project Lead The Way	Nextech (Code.org)	iDEW	A World in Motion
1:10 PM	Break/Transition Time					
1:20 PM	Indiana Science Initiative	EngrTEAMS	Picture-Perfect STEM	Codelicious	Indiana Computes!	Smithsonian Science
1:50 PM	Break/Transition Time					
2:00 PM	Full Option Science System (FOSS)	PictureSTEM	HASTI	AP TIP-IN	Apple	Five-Star Technology

The following organizations will be present in the vendor hall, but will not have concurrent sessions: Direct Employers Institute, Girls Who Code, Learning.com, Pitseo Education (Moss), Robot Academy, STEM Education Works, STEM Roadmap, teacherCODE, University of Indianapolis, and 1st Maker Space.

**Event Location:** Conner Prairie  
13400 Allisonville, Rd  
Fishers, IN 46038

[Participating Organization/Provider List](#)

**Contact [Jake Koressel](#) with questions.**

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# Indiana Department of Education

## 2020 Legislative Priorities



### Student Learning

- Allow for homeless students serviced by McKinney-Vento to access 21st Century Scholar dollars
- Create a more inclusive K-12 environment for students
- Support measures that address the public health epidemic of vaping in student populations
- Increase operational accountability and programmatic quality for virtual schools

### School Improvement

- Support hold harmless and urge both SBOE emergency rulemaking for accountability and a pause in the intervention timeline in response to ILEARN
- Support a transparent, single accountability system for Hoosier families
- Advocate for charter school quality by holding authorizers accountable for academic and fiscal responsibilities
- Create more options for child abuse prevention education
- Require all Choice scholarship and charter schools to have at least one school safety specialist; establish a school safety plan; develop a written emergency preparedness plan; and establish a safe school committee
- Align appropriate terminology of Multi-Tiered Systems of Support from prior Response to Intervention model
- Allow teachers serving special education inter-locals or stand-alone career technical education centers to receive Teacher Appreciation Grant dollars
- Make 15 PGP point career awareness requirement optional for teachers
- Require educator preparation programs to prepare new practitioners in state-recognized computer science programs and project-based learning approaches
- Expand Indiana's reciprocity statutes to create more opportunities for out-of-state license holders

### Operational Effectiveness

- Consolidate the number of data collection dates, including count dates, for charter schools, traditional corporations, and accredited non-public schools to October 1
- Require new public, charter, and Choice schools to report data via a student information system to IDOE using the Ed-Fi data standards
- Repeal requirement that school buses affix black reflective tape to their bumpers
- Require authorizers of closed charter schools to: 1) be responsible for any overpayment due for tuition support; and/or 2) be responsible for unpaid Common School Loans
- Prohibit an operator of a charter school that closes to operate a new charter school for a period of five years
- Amend IC 20-24-7-9 to require charter school operators and authorizers to be bonded in the event the charter school closes
- Amend IC 20-24-7-4 to require charter school authorizers to retain half of the administration fee in escrow to cover the costs associated with the school closure
- Require charter school governing body to seek approval from the authorizer before entering into a Common School Loan agreement, with the authorizer required to co-sign the Common School Loan



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## **2020 - 2021 STEM Acceleration Grant Recipients**

**Anderson Preparatory Academy****Avon Community School Corporation****Brownstown Central Community School Corporation****Christel House Academy****Community School Corporation of Southern Hancock County****Culver Community School Corporation****Delaware Community School Corporation****East Noble School Corporation****Edinburgh Community School Corporation****Greater Clark County Schools****Greenfield-Central Community School Corporation****Greensburg Community School Corporation****Indiana Math and Science Academy West****Jac-Cen-Del Community School Corporation****Jennings County School Corporation****Matchbook Learning Schools of Indiana****Mitchell Community Schools****MSD of Mt. Vernon****MSD of North Posey County****MSD of Pike Township****North Harrison Community Schools****Northeast School Corporation****Plainfield Community School Corporation****Salem Community Schools****South Dearborn Community School Corporation****South Vermillion Community School Corporation****Southwest Dubois County School Corporation****Tri-County School Corporation****Victory College Prep Academy****Warsaw Community Schools****Washington Community Schools****Wawasee Community School Corporation****Whitko Community School Corporation****Yorktown Community Schools**



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### CTE Funding Memo Updates

Funding levels for computer science courses were updated for the 2020-2021 school year. The updated funding levels can be found in the table below.

IDOE Course Code	IDOE Course Name	Cluster/Sub ject Area	Credits Per Semester	Max Credits Allowed	CTE Funding Threshold	CTE Funding Level
4801	Computer Science I	IT	1	2	High Value Level 1	\$680
5236	Computer Science II	IT	1-3	6	High Value Level 2	\$1,020
5253	Computer Science III: Cybersecurity	IT	1-3	6	High Value Level 2	\$1,020
5250	Computer Science III: Databases	IT	1-3	6	High Value Level 2	\$1,020
5251	Computer Science III: Informatics	IT	1-3	6	High Value Level 2	\$1,020
5249	Computer Science III: Software Development	IT	1-3	6	High Value Level 2	\$1,020
5252	Computer Science III: Special Topics	IT	1-3	6	Pilot	\$300
4803	Introduction to Computer Science	IT	1	2	Introductory	\$300





# Indiana Department of Education

## Outcomes Supporting Governor's NextLevel Agenda



**Vision:** All Indiana students develop skills and explore their passions through high-quality learning experiences that prepare them for engaged citizenry and successful participation in a global economy.

**Mission:** The Indiana Department of Education advocates for students, supports districts and schools with guidance and resources, and leads the K-12 ecosystem.

### Pillar I

**Cultivate a Strong & Diverse Economy**

### Pillar II

**Maintain & Build the State's Infrastructure**

### Pillar III

**Develop a 21st Century Skilled & Ready Workforce**

### Pillar IV

**Attack the Drug Epidemic**

### Pillar V

**Deliver Great Government Service**

- Issued the highest number of teacher licenses in ten (10) years, resulting in an additional 2,000 licenses issued since 2017.
- Increased the number of licenses issued to military veterans by 50%.
- Redesigned license flexibility in 58 courses in order to expand student and educator opportunities as aligned to workforce and college demands.
- Modernized 34 CTE licensing area requirements in order to support Graduation Pathways and workforce readiness.
- Developed course standards for Ethnic Studies and Indiana Studies for the first time in the State's history, thus, showcasing Indiana's story and the importance of ethnic diversity.
- Cultivated a strong teacher-leadership program through *Teach to Lead* to attract and retain educator talent.
- Established the Cultural Competency Advisory Council to develop culturally responsive resources and teacher awareness to affirm current and future educational environments.





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**Deliver Great Government Service**

- Increased the percentage of schools/districts with Wi-Fi access to 99%.
- Increased course access to students via online learning opportunities by 10%.
- Developed Indiana's Course Access Portal (iCAP) to provide all students access to more than 90 courses.
- Increased districts' broadband (>200 Mbps/1,000 students) by 35%.
- Increased 1:1 (device:student) technology in K-12 by 10%.
- Decreased K-12 connectivity costs significantly per megabyte by allowing increased competition.



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**Deliver Great Government Service**

- Created Indiana's first six-year *STEM Strategic Plan* through the development of the Indiana STEM Council.
- Increased the number of STEM infused K-12 districts by 60.
- Delivered STEM-focused professional development to 16,000 Indiana educators, including 300 computer science certifications.
- Identified and vetted quality STEM curricula in support of developing students' 21st Century skills.
- Launched implementation of Graduation Pathways by offering 11 statewide trainings and the development of a new website.
- Aligned IDOE staffing to meet the demands associated with Graduation Pathways.
- Pursued and secured a \$59 million grant to support high quality charter school programs, emphasizing the need for transparent accountability.
- Developed the capacity of over 1,000 school leaders by embedding "systems thinking" in innovative school improvement models.
- Served on the Governor's Workforce Cabinet and participated in two subcommittee work groups.





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- Empowered and equipped educators from 20 districts with workplace experiences through participation in CTE externships.
- Launched Indiana's first summer CTE expansion opportunity for students representing 37 districts.
- Led Indiana's first cybersecurity course pilot at seven selected high schools with an additional 20 pending.
- Developed Indiana's nationally recognized ESSA plan by holding 21 statewide stakeholder meetings with more than 1,000 participants.
- Collaborated to develop and design two new high school mathematics courses, including a higher education transition course and an alternative course to Algebra II (pending approval).
- Implemented a career exploration pilot program in 35 Indiana middle schools.
- Increased computer science offerings in Indiana high schools by 27% while expanding CTE dual credit courses and pathways in cybersecurity, IT, and software development.
- Developed and hosted 1,500 educators at Indiana's first-ever *Title Con* conference and *McKinney-Vento Homeless Student* conference to educate schools on related processes and services.
- Sponsored Indiana's first-ever *Parent Advisory Council* for Indiana's 2,100 migrant students to better align with workforce needs.



# Indiana Department of Education

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### Pillar V

**Deliver Great Government Service**

- Pursued and secured a \$9 million grant awarded to address social-emotional learning needs.
- Constructed Indiana's *Social, Emotional, and Behavioral Plan* through cross-agency collaboration to be completed in 2018.
- Developed and introduced K-12 social-emotional competencies in partnership with higher education.
- Contributed to the governmental task force by identifying and sharing system gaps related to mental health and substance abuse.
- Advised initiatives by serving on the Commission on Improving the Status of Children in Indiana and participating in seven subcommittees.
- Clarified and improved access for K-12 prevention resources within Indiana communities using the *Prevention Resource Center*.





# Indiana Department of Education

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### Pillar V

**Deliver Great Government Service**

- Cross-walked the IDOE's Strategic Plan to the Governor's NextLevel Agenda to establish alignment with the foundational expectation of government efficiency and service.
- Reorganized the IDOE to reflect Indiana's priorities surrounding STEM, CTE, mental health, ESSA, and governmental efficiency.
- Designed and began the five-phase process of modernizing IDOE's systems related to grant management, student and educator data exchange, reporting, unified access, and customer service.
- Planned and partnered to hold the largest School Safety Academy in Indiana history hosting 1,200 participants bringing the total number of School Safety Specialists to 2,500.
- Conducted ongoing IDOE customer satisfaction surveys to monitor expectations for great government service which resulted in a satisfaction rate of 4.5/5 (avg).
- Created and conducted Indiana's first-ever *Your Voice Matters* teacher survey with responses representing the voices of 284 districts.
- Conceptualized a framework and commissioned the first two phases of Indiana's assessment system promoting efficiency and effectiveness by engaging over 1,600 educators.
- Launched the K-12 *Cybersecurity Phishing and Awareness Campaign* with an initial enrollment of 34,571 staff members representing 73 districts.



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### Computer Science Fundamentals Workshop Offerings

Date	Location
June 4, 2018	Martinsville High School
June 7, 2018	Batesville High School
June 11, 2018	Mt Vernon Middle School
June 14, 2018	Anderson Community School Corporation
July 9, 2018	Clay Middle School
July 10, 2018	Schmucker Middle School
July 18, 2018	Indiana University
July 24, 2018	Monroe County Community School Corporation
July 25, 2018	Warsaw Community High School
July 31, 2018	Fishers High School
August 6, 2018	Canaan Community Academy
August 8, 2018	School City of Hammond
August 16, 2018	Indiana School for the Deaf
September 1, 2018	Indiana University
September 27, 2018	Edgewood Intermediate School
October 23, 2018	Boonville High School
November 3, 2018	Ball State Innovation Center
November 13, 2018	La Porte County Public Library
November 14, 2018	Indiana Wesleyan University - Fort Wayne
November 28, 2018	Innovation Pointe - Evansville
November 29, 2018	WestGate Academy - Odon
December 5, 2018	Indiana Wesleyan - Merrillville
January 19, 2019	Ball State Innovation Center - Fishers, IN



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January 29, 2019	WestGate Academy - Odon, IN
January 30, 2019	Ivy Tech - Bloomington, IN
February 8, 2019	Indiana University - Bloomington, IN
February 9, 2019	Indiana Wesleyan University - Greenwood, IN
February 15, 2019	Ivy Tech - Sellersburg, IN
February 23, 2019	Ball State Innovation Center - Fishers, IN
February 25, 2019	ETHOS Innovation Center
February 26, 2019	John Young Middle School - Mishawaka, IN
March 13, 2019	Purdue University - West Lafayette, IN
March 25, 2019	Ball State University
June 5-6, 2019	ETHOS Innovation Center
June 11, 2019	Vincennes University
June 21, 2019	Pike Central High School
September 21, 2019	Ball State Innovation Center - Fishers, IN
September 27, 2019	Elkhart, IN
October 8, 2019	North Vernon, IN
October 30, 2019	Fort Wayne, IN
November 2, 2019	Ball State Innovation Center - Fishers, IN
November 7, 2019	North Vernon, IN
November 16, 2019	Saint Mary of the Woods - Saint Mary-of-the-Woods, IN
November 20, 2019	Avon, IN
December 5, 2019	EVSC - Evansville, IN
December 9, 2019	Tell City Depot - Tell City, IN
December 10, 2019	Jasper High School - Jasper, IN





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### **IDOE Computer Science Support Activities**

Date	Event	Location
August 28, 2018	Artificial Intelligence and Education Panel	Cummins, Indianapolis
September 13, 2018	Summer of eLearning Reflection Meeting	PLTW, Indianapolis
September 17, 2018	IMLEA Conference	Indianapolis Marriot North
September 18, 2018	CS Standards and Assessment Webinar	Virtual
September 21, 2018	Flipping the Switch! K-8 Computer Science Conference	University of Indianapolis
September 22, 2018	Flipping the Switch! K-8 Computer Science Conference	University of Indianapolis
September 25, 2018	Nextech SCRIPT	Speakeasy Downtown Indianapolis
October 11, 2018	ICE Conference	Noblesville, IN
October 25, 2018	Nextech SCRIPT	WestGate Academy, Odon, IN
November 7, 2018	HECC Conference	Union Station, Indianapolis
November 9, 2018	HECC Conference	Union Station, Indianapolis
November 16, 2018	IBEA Conference	Wyndam Indianapolis West
November 29, 2018	MCCSC STEM/CS Strategic Planning Meeting	Bloomington, IN
November 29, 2018	Moderate INeLearn Twitter Chat	Virtual
November 30, 2018	IU Pre-service Teachers at Lakeview Elementary	Bloomington, IN
December 3-7, 2018	Various Activities Related to CS Ed Week	Virtual and in-person



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December 7, 2018	Counselors for Computing	Salesforce, Indianapolis
December 13, 2018	MCCSC STEM/CS Strategic Planning Meeting	Bloomington, IN
January 10, 2019	Purdue STEM Conference	West Lafayette, IN
January 17, 2019	Summer of eLearning Coordinator's Meeting	Indianapolis, IN
January 17, 2019	MCCSC STEM/CS Strategic Planning Meeting	Bloomington, IN
January 22, 2019	CIESC STEM Showcase	Indianapolis, IN
January 23, 2019	CS for School Counselors Webinar	Virtual
January 25, 2019	Meeting at IU to Discuss CS in Pre-Service Teacher Preparation	Bloomington, IN
January 28, 2019	CS for School Counselors Webinar	Virtual
February 21, 2019	Computer Science Curriculum Showcase	Greenwood, IN
March 9, 2019	State Robotics Competition	Indianapolis, IN
April 12, 2019	K-8 Science Framework Development	Indianapolis, IN
May 7, 2019	Jennings County STEM Showcase	North Vernon, IN
May 16, 2019	CTO Clinic	Indianapolis, IN
July 18, 2019	Pathfinders Summer Institute	Bloomington, IN
July 25, 2019	Cybertech Midwest	Indianapolis, IN
September 16, 2019	Flipping the Switch! K-12 Computer Science Conference	Indianapolis, IN
September 17, 2019	Flipping the Switch! K-12 Computer Science Conference	Indianapolis, IN
September 20, 2019	IACTE Conference	Indianapolis, IN
September 20, 2019	IMLEA Conference	Indianapolis, IN



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October 18, 2019	Indiana Connected Educators Conference	Noblesville, IN
October 21, 2019	STEM and Computer Science Curriculum Showcase	Fishers, IN
November 8, 2019	HECC Conference	Indianapolis, IN
November 13, 2019	Moderate #INedchat	Virtual
November 20, 2019	Nextech SCRIPT	Richmond, Indiana
November 21, 2019	ROI STEM Fellows CSPD Day	Odon, IN
November 22, 2019	IBEA Conference	Indianapolis, IN
December 2, 2019	Nextech SCRIPT	Fishers, IN



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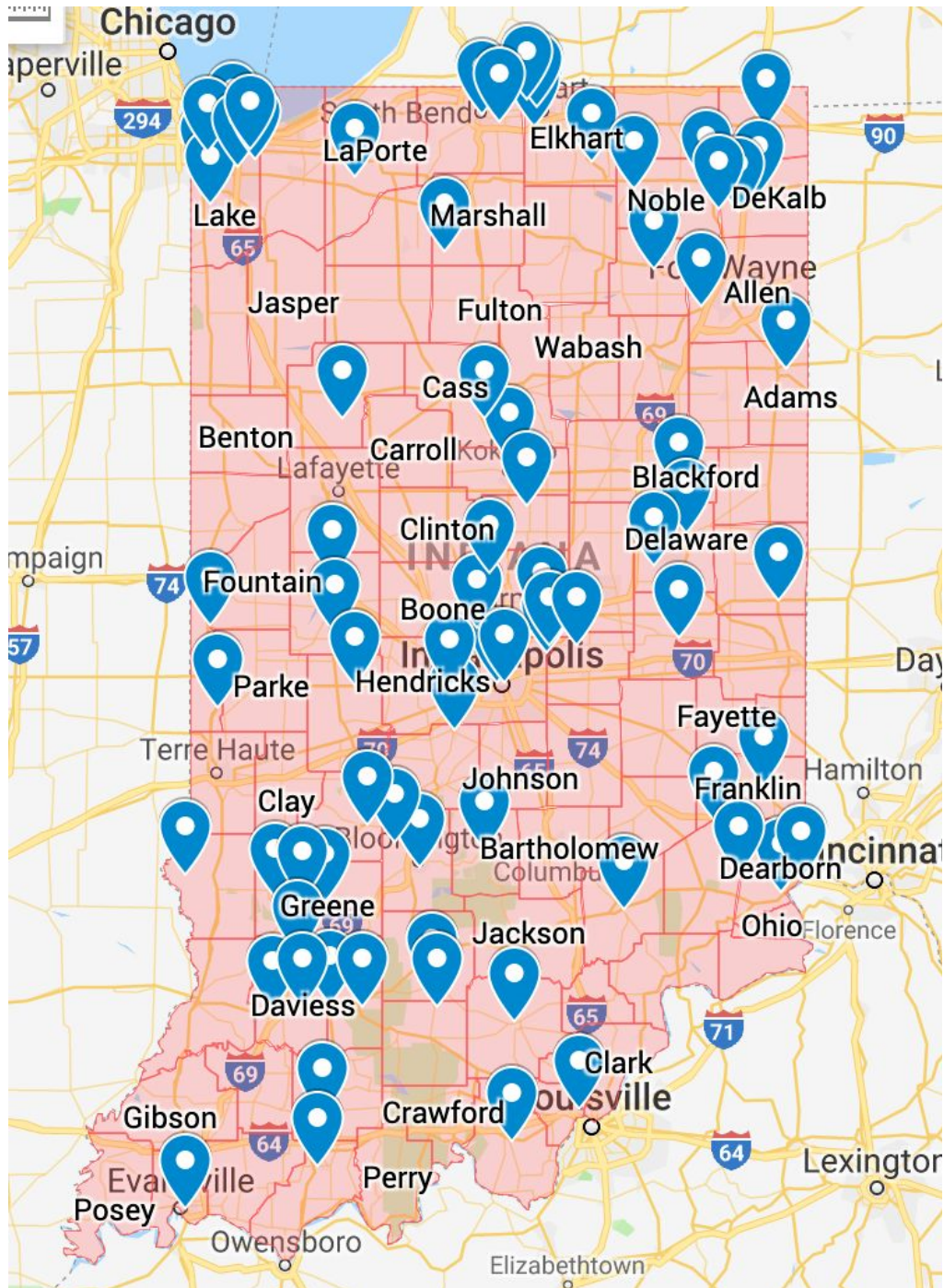
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### SCRIPT Workshop Offerings

Date	Location
September 25, 2018	The Speakeasy Downtown - Indianapolis
October 24, 2018	WestGate Academy - Odon, IN
November 6, 2018	Ball State Innovation Center - Fishers, IN
December 3, 2018	Region 8 ESC
December 11, 2018	ETHOS Innovation Center - Elkhart, IN
January 9, 2019	Southern Indiana ESC
January 15, 2019	IPS Forest Manor Professional Development Center
January 23, 2019	Merrillville Community Schools Freshmen Center
February 4, 2019	West Central ESC
February 15, 2019	Ivy Tech - Sellersburg, IN
February 26, 2019	Southern Indiana Career and Technical Center
March 6, 2019	Batesville High School
March 12, 2019	Purdue University - West Lafayette, IN
November 18, 2019	Columbus, IN
November 20, 2019	Richmond, IN
December 2, 2019	Fishers, IN

### SCRIPT Participating Districts Map





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### **Integrating Computer Science in Middle School Workshop Offerings**

<b>Date</b>	<b>Location</b>
October 16, 2018	Drury Inn Indianapolis
October 23, 2018	Ivy Tech South Bend
October 24, 2019	Merrillville, IN
November 8, 2018	Innovation Pointe - Evansville
December 12, 2018	La Porte County Public Library
January 23, 2019	Fishers, IN
January 29, 2019	WestGate Academy - Odon, IN
February 13, 2019	Zionsville, IN
February 15, 2019	Ivy Tech - Sellersburg, IN
February 26, 2019	John Young Middle School - Mishawaka, IN
March 11, 2019	Purdue University - West Lafayette, IN
March 12, 2019	Ball State Fishers Center for Academic and Economic Innovation
March 13, 2019	Zionsville, IN
May 29, 2019	Plainfield, IN
November 12, 2019	Avon, IN
November 19, 2019	Greenwood, IN
December 3, 2019	Evansville, IN





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## Computer Science Pathway Information

The information below outlines an exemplar program of study for students wishing to pursue a pathway in computer science. This information is followed by the current requirements to achieve concentrator status in the computer science pathway.

### Indiana College and Career Pathway Plan – State Model

**Cluster:** Information Technology**Pathway:** Computer Science

#### **Core 40 with Honors High School Graduation Plan\***

\*This is a SAMPLE plan for schools to use in planning. Course sequences and grade level in which courses are offered may vary according to local policies, practices, and resources.

Students should enroll in Indiana Career Explorer, complete interest inventories, and investigate careers in clusters & pathways prior to or during the time they create their individual Pathway Plans.

Grade	English/ Language Arts	Math	Science	Health/PE Social Studies	CTE/Career Preparation Courses for this Pathway	Other Elective Courses for this Pathway	
9	English 9	Algebra I	Biology	Health & Wellness/ Physical Ed	Introduction to Computer Science OR Digital Application and Responsibility	Preparing for College and Careers	World Language
10	English 10	Geometry	Physics	Geography/History of the World or World History/Civilization	Computer Science I	Engineering /Technology Elective	World Language
11	English 11	Algebra II	Chemistry	US History	Computer Science II	Personal Financial Responsibility	World Language
12	English 12	Pre-calculus and/or Probability and Statistics	Elective Science Course	Government Economics	<b>Choose one of the following Capstone Courses:</b> Computer Science III: Cybersecurity, Database, Software Development, or Informatics		Fine Arts (Suggestion: Design Fundamentals )

**State specified Pathway Assessment:** Dual Credit Finals

**Industry Recognized Certification:** C++ Institute Certified Programming Associate (C++/Python), Oracle Java Foundations, MTA Software Fundamentals (several languages), and Oracle DB Foundations, Microsoft MTA DB Fundamentals, CCNA Cyberops, Salesforce Administrator

**Dual Credit:** Many of the courses in Indiana provide the opportunity for dual credit for students who meet postsecondary requirements for earning dual credit. The Dual Credit crosswalk can be accessed [here](#).





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In order to achieve concentrator status in the computer science pathway, students must satisfy the following requirements:

For students in cohorts 2019-2022, six credits must be earned from the following courses:

- Preparing for College and Careers
- Introduction to Computer Science
- Digital Applications and Responsibility
- Computer Science I
- AP Computer Science Principles
- Computer Science II
- AP Computer Science A
- Computer Science III: Special Topics
- Computer Science III: Databases
- Computer Science III: Informatics
- Computer Science III: Software Development
- Computer Science III: Cybersecurity
- Interdisciplinary Cooperative Education
- Work Based Learning Capstone

For students in cohort 2023, students must complete two courses in accordance with the table below:

Cluster	Pathway / Program of Study	IDOE Course Code	Concentrator Course A	IDOE Course Code	Concentrator Course B
STEM / Information Technology	Computer Science / Programming	4801	Computer Science I	5236	Computer Science II
				5250	Computer Science III: Databases
				5251	Computer Science III: Informatics
				5249	Computer Science III: Software Development
				5253	Computer Science III: Cybersecurity